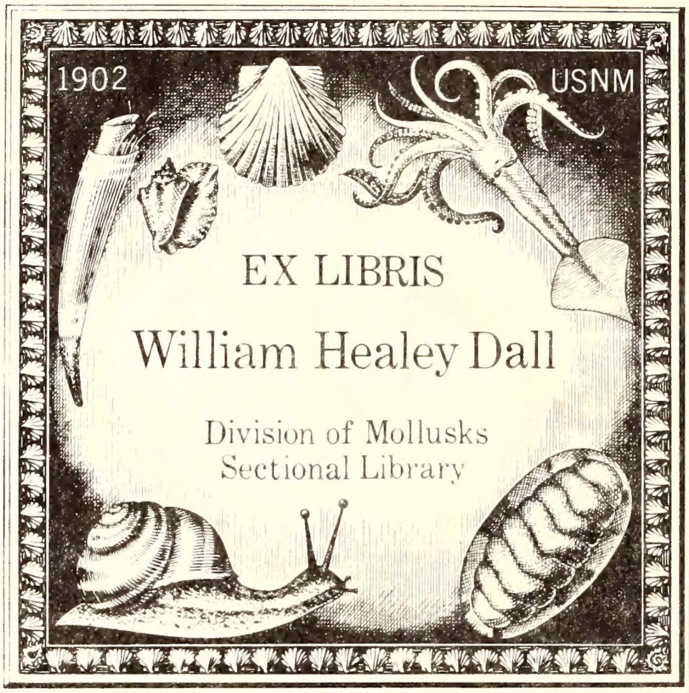

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JAN. 1951
CONCHOLOGICAL CLUB OF SOUTHERN CALIFORNIA

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EXOTIC MOLLUSCA IN CALIFORNIA
By Dr. H.R. Hill

From time to time, mollusks from foreign lands have been introduced accidentally or purposely in California. Some found the climate and environment favorable and reproduced their kind. A few of the larger land species increased in such numbers that they became a serious hazard to crops and vegetation. Attempts to eradicate them have been most successful except in the case of the common garden (or European Brown Snail) Helix aspersa, which has been an unwelcome garden pest in California for nearly 100 years.

There are many ways in which exotic mollusks are accidentally introduced into the state. Some small land and freshwater forms enter with nursery stock where the shipment is not thoroughly inspected or sterilized at point of origin or at destination. Others get in with shipments of fruits, vegetables and wood products, by rail, auto and boat transportation.

(con.)

NOTICE

FTER CAREFUL EXAMINATION OF THE
NNER MARGIN AND TYPE OF MATERIAL
E HAVE SEWN THIS VOLUME BY HAND
O IT CAN BE MORE EASILY OPENED
ND READ.

Even collectors have been guilty of receiving live specimens from foreign lands and allowing them to escape.

Marine species have entered with young oyster shipments, and have established themselves in certain areas. Ship's bottoms are responsible for the distribution of attached species that are dislodged in port. One species of *Teredo*, *T. navalis* which has been very destructive to submerged timbers in San Francisco Bay, is thought to have been introduced in this manner.

Fish fanciers have introduced numerous so-called " scavenger snails" like *Linnea*, *Ampullaria*, *Helisoma* and *Vivipara* into their aquarium tanks and some of these mollusks eventually find their way into local ponds and streams. *Ampullaria*, however, has not been found to propagate in this state, except in aquariums.

The exotic mollusks which at one time or another have invaded California and are considered most dangerous as garden or crop pests, are the European Brown Snail, *Helix aspersa*, the White Snail, *Theba pisana*, the Milky Snail, *Otala lactea*, and the Green Snail, *Helix aperta*. All except *H. aperta* were probably planted by foreign born citizens for food purposes, as they are considered a delicacy by the natives of Southern Europe. No concentrated effort has ever been made to eradicate *H. aspersa* because of its widespread occurance. With regard to the other three, Federal, State and local authorities have waged a continuous campaign against them wherever they have appeared, resulting in their near extermination.

Theba pisana was first noticed near La Jolla in 1914 but eradication was not attempted until heavy infestation in that area was reported in 1918. Subsequent infestations were discovered in Orange and Los Angeles counties.

A large shipment of live *Otala lactea* was confiscated at San Pedro in 1930. These were sent from Morocco. On November 13, 1940 a teacher from an elementary school near Elysian Park brought me live specimens of this species that had been brought to her by some of her pupils. I immediately notified the Agricultural Commissioner's office and the source was traced to an area of 21 blocks, bordering the park. Eradication operations were begun at once and the infestation controlled. Some months later, live specimens were found at Playa del Rey, about 15 miles from the original infestation. In June, 1941, Dr. Hanna reported its occurance in San Francisco, where it was found confined to one residential block.

The Green Snail of Southern Europe, *Helix aperta*, was first reported from San Ysidro, San Diego County, in 1941, where it caused considerable damage to flowers and vegetables in an area of 500 acres. More difficulty was experienced in eradicating this species, in comparison with the others, because of its burrowing habit during the dry season.

Ten of the 21 species of land slugs found within the state are unintentionally introduced European species. The larger forms, such as the three species of *Limax*- *maximus*, *flavus* and *marginatus*- are widespread and do considerable damage to vegetables and garden plants. A smaller slug, *Milax gagates*, usually called the " greenhouse slug", is also quite destructive. Three species of *Arion*- *hortensis*, *circumscriptus* and *intermedius*, occur in greenhouses in the San Francisco Bay area, and *Testacella haliotidea*, a carnivorous slug, is also confined to Northern California.

(con.)

Two common species of the genus Deroceras- D.reticulatum and D. laeve - are of economic importance, and are considered among the worst pests of gardens and field crops. D. laeve is most abundant in Northern California.

A large number of small land mollusks have been reported from various areas in the state, many of them probably introduced with nursery stock. Among these might be mentioned Cochlicella ventricosa, Vallonia pulchella, Vitrea cellaria, and the young of Cepaea hortensis and C. nemoralis, Lamellaxis gracilis, Subulina octona and Rumina decollata.

At ports of entry, customs inspectors and state agricultural inspectors are always on the alert for live land and fresh-water mollusks that might prove dangerous if allowed to escape. Shipments of bananas, mahogany logs and other tropical hardwoods usually harbor the young of different species of Orthalicus, Euglandina, Bulimulus and Drymaeus. Shipments of aquatic vegetation yield species of Physa, Helisoma, Succinea, Linnea and other fresh-water mollusks.

Linnea auricularia is widely distributed throughout the state. This mollusk and several species of Asiatic Vivipara were probably originally planted in outdoor pools and ponds or escaped from fresh water aquaria. Inspectors have been warned to look out for certain Asiatic fresh-water snails that harbor the young stages of parasitic worms which are the cause of serious diseases in the Orient. Fortunately, none of these have become established on this side of the Pacific.

A great deal of publicity has been given to the Giant African Snail, Achatina fulica, and its possible entry into the United States. It has even been reported by newspapers as " on the loose" in San Pedro, a statement contrary to fact. It is true, however, that this dangerous snail has migrated from East Africa to Ceylon, India, Siam, Malaya, and to numerous islands of the East Indies. The Japanese introduced it into Saipan and other places as a source of food. It has spread to Guam and the Hawaiian Islands. In the latter place, authorities have been able to stamp it out. Large numbers of dead and living specimens have been intercepted at San Pedro and San Francisco in war surplus shipments from Eniwetok and Saipan. Many were found hidden in old army tanks and other mobile units. The Navy is interested in exterminating Achatina fulica from Guam and is investigating methods for its control. It has been suggested that the natives of Guam be encouraged to utilize it as food and the possibility of introducing a natural snail enemy from Africa has been taken into consideration. This enemy is the " cannibal snail", Goniaxis monrovia. The San Francisco area is the focal point for the introduction of Japanese and Atlantic Coast marine mollusks. Many exotic species have been brought in with seed oysters. They are usually young individuals, and comparatively few grow to maturity, reproduce and become a part of the local fauna. Some of the Japanese species that have found the environment favorable and increased in numbers, are the Japanese oyster, mussels, Corbicula flaminea, Tapes philippinarum, and the Japanese drill, Tritonalia japonica. Atlantic coast forms that have secured a foorhold in this area are the Soft-shell Clam, Mya arenaria , several species of mussel, Busycon canaliculatum, Nassarius obsoletus, Petricola pholadiformis, and the oyster drill, Urosalpinx cinereus.

(con.)

The widespread invasion of the bays of Southern California by a foreign mussel has been the cause of a great deal of discussion among local conchologists as to the identity of the species. Dr. Bartsch identified it as the Japanese Mytilus dunkeri known also as M. grayanus, while Dr. Coe has described it as a variety of M. edulis- var. diegensis. It is hoped that the correct determination of this species will some day be agreed upon to the satisfaction of all concerned.

As to the future, it can be expected that exotic mollusks will occasionally be introduced by accident. It is important, however, that harmful species be recognized at our borders and prevented from doing damage to our agriculture or being a potential menace to the health of our citizens.

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NEW RECORDS OF WEST COAST HALIOTIS

By Walter J. Eyerdam

In 1940 Dr. Paul Bartsch published " The West American Haliotis" in the Proceedings of the United States National Museum, vol.89, No. 3094. Haliotis sorensoni was described as a new species from slightly south of Point Conception in the Santa Barbara Channel where the type and two paratypes were taken by a commercial diver in comparatively deep water. The type is in the U.S. National Museum. Thru gift and an exchange from Mr. Andrew Sorenson I have the two paratypes in my collection.

At the time I attended the West Coast Malacological convention last April, Mr. Spicer, Mr. Wilcox and I went to the Santa Barbara fisherman's dock where for one dollar we were permitted to help ourselves to pick as we wished from the huge pile of abalone shells on the end of the dock. My choice was several nice shells each of H. rufescens, H. corrugata, and H. fulgens. In making a subsequent more careful search of the pile of shells I found a fine specimen of H. sorensoni which was verified by Andy upon return to the Barbara Hotel. This shell is almost the exact size of the two paratypes and was taken by a commercial diver from the approximate type locality. Mr. Sorensen related that after the first specimen was found the diver made diligent search for others in the vicinity and found but three more in two weeks and no other divers had found any others to date. On one of Mr. Sorensen's annual excursions to Mexico he found a curio dealer in San Diego from whom he purchased several shells of this species which probably came from Guadalupe Island, Mexico.

In Dr. Bartsch's paper another rare abalone Haliotis ponderosa C.B. Adams was described from the only specimen known which is in the collection of Amherst College. Nothing was known about where it originally came from except that Dr. Bartsch suspected it to be from Southern California. The dimensions of this shell is, greater length 215mm greater diameter 167mm and height 80 mm.

I can now report that two of the specimens I collected from the shell heap on the fisherman's dock at Santa Barbara are definitely Haliotis ponderosa and agree well with the description. They are round, heavy and deeply excavated with four open siphonal craters. By comparison with H. rufescens, one can see at a glance that they are different species. These two additional records also were taken by a commercial diver in the Santa Barbara Channel a little south of Point Conception. The largest specimen is much larger than the type in Amherst College. The dimensions of these

two shells taken in April,1950 are as follows:

No.1. greater length-- 241 mm --- 8 9/16"
" diameter 202 mm
" height 95 mm
No.2 " length 210 mm
" diameter 110 mm
" height 80 mm

This at least makes these two specimens approach the status of types. Being a close relative if not a subspecies of Haliotis rufescens it probably is not as rare as it may seem but obviously passes as a variant of that species.

There are 48 species and varieties of Haliotis in the Eyerdam collection.

Haliotis in the collection of W.J. Eyerdam

West Coast of America
1. assimilis Dall
2. aulea Bartsch Par.
3. corrugata Gray
4. californiensis Swainson
5. cracherodii Leach
6. splendidula Williamson
7 " holzneri Hemphill
8. fulgens Philippi
9. " turveri Bartsch Par.
10. californiensis bonita Orcutt
11. cracherodii imperforata Dall
12. kamtchatkana Jonas
13. rufescens Swainson
14. sorenseni Bartsch Par.
15. wallalensis Stearns
16. ponderosa C.B. Adams

Australasia
17. assinina L.
18. albicans Q. & G.
19. australia Gmelin
20. coccoradiata Reeve
21. cyclobates Peron
22. emmae Reeve
23. planata Sowerby
24. scalaris Leach
25. sanguinea Homley
26. varia L.
27. naevosa Martyn
28. tayloriana Reeve
29. rosacea Reeve
30. pulcherrima Reeve
31. glabra Chemnitz

Japan
32. diversicolor Reeve
33. discus Reeve
34. gruneri Philippi
35. giganteus Gmelin
36. japonicus Reeve
37. sieboldii Reeve
38 discus hannai Ino

European
39. lamellosa Lamarck
40 " aquaticus
41 tuberculata Linne

South Africa
42. alternatus Sowerby
43. midae Linne

New Zealand
44. iris Martyn
45. virginea Gmelin
46. " huttoni Filiol
47 " maorioria Powell

Philippine Islands
48. astricta Reeve

Additional Notes by Walter J. Eyerdam

I am submitting several more records for the " Lost Operculum Club".

1. *Mytilus californianus* Conrad - Kuiu, S.E. Alaska from outer wave swept rocks. I know there are still larger ones but this one has 45 annual growth rings. It is Length 252 mm, Width 100 mm, Depth 90 mm
2. *Mytilus edulis* Linne June,1932- Unalaska Id.
   L. 90 mm W. 40 mm Depth 47 mm
3. *Panomya norvegica turgida* Dall 1931- Sitkalidak Id.,Alaska
   L. 80 mm W. 50 mm Depth 32,mm
4. *Saxicava arctica* Linne- 1932 Unalaska - Aleutian Islands
   L. 50 mm W. 24 mm Depth 21 mm
5. *Acmaea scutum pintadina* Gould- Afognak Island
   L. 61 mm W. 50 mm Height 20 mm
6. *Buccinum baeri* Midd. Sitkalidak Island
   L. 38 mm W. 26 mm
7. *Trichotropis bicarinata* Sowerby- St. Lawrence Island
   L. 37 mm W. 38 mm

****

In February, 1948 while collecting shells on the sand beach at Copalis, Pacific Co.,Wash. I found one valve of the brilliantly pearly irridescent shell of *Entodesma scammoni* Dall. This is not a *Mytilimeria* nor *Thracia plicata*. I have collected many *E. saxicola* which has many variations in shape. None of these show the brilliant pearly lustre of the above specimen.

Near Valparaiso in 1939 I also collected *Entodesma chilensis* Philippi which is the genotype.

Entodesma scammoni is exceedingly rare and lives probably on offshore reefs beyond flat sandy coastal beaches.

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SOME CYPRAEIDAE COLLECTED IN THE SOLOMON ISLANDS AND PAPUA

By Walter J. Eyerdam

In 1929 and 1930 while engaged as ornithological and mammal collector as a member of the Whitney South Seas Expedition, I made extensive collections of shells as a side line. About 1200 species and varieties of all classes of shells were collected. No attempt has been made to date to work up the marine and fresh water shells.

Altho as complete a series of shells as possible was made at every island and landing where collecting was possible, I retained but a few duplicates of cowries from islands so the following list represents only a partial number of the species collected. This list is based on Schilder's classification.

The most notable locality was at Sun, Malaita Island on a tiny beach about 150 years long where a storm had deposited windrows of shells. Approximately 400 species and varieties were found on this little beach. The remarkable feature was that beyond this beach one could walk for ten miles without finding a shell.

Races of shells as classified by Schilder and Schilder are called varieties for convenience.

The list follows on the next page.

CYPRAEIDAE

1. Pustularia cicercula cicercula Linne Suu, Malaita & Santa Anna
2. " globulus sphaeridium Schilder China Strait,Papua
3. " childreni childreni Gray Suu,Malaita Id.
4. Naria irrorata Gray Suu,Malaita Id. & Santa Anna Id.
5. Staphylaea nucleus Linne Tulagi Id. & China Strait,Papua
6. Erosaria caput serpentis argentata Dautzenberg & Bouge
   Samarai, Papua & Santa Anna Id, &
   Malaita Id. & Rennell Id & Bellona Id.
7. " helvola helvola Linne China Strait, Papua
8. " erosa chlorizans Melvill San Cristoval Id.
9. " miliaris eburnea Barnes Santa Anna Id.
10. " labrolineata Gaskoin var helenae Roberts Santa Anna Id
11. Monetaria annulus noumeensis Marie Papua & Tulagi Id. &
    San Cristoval Id. & Malaita Id. &
    Bougainville Id.
12. " moneta barthelemyi Bernardi Bougainville Id., Malaita Id
    Santa Anna Id., San Cristoval, Rennell,
    & Bellona Id., New Ireland & Shortland,
    and China Strait, Papua
13. " moneta pseudannulus Finch Tulagi Id.
14. " " rhomboides Schilder & Schilder Rambaul, New Britain
15. Erronea errones coerulescens Schroter Santa Anna Id.
16. " caurica obscura Rossiter Tulagi Id. & Suu, Malaita Id
17. Palmadusta asellus britaeniata Geret Suu,Malaita Id.
18. " clandestina clandestina Linne Suu,Malaita Id.
19. " contaminata contaminata Sowerby Suu,Malaita Id.
20. " felina Gmelin var melvilli Hidalgo Suu, Malaita Id.
21. " microdon Gray var granum Schilder Suu, Malaita Id.
22. Blasicrura hirundo Gray var neglecta Sowerby China Strait,Papua
23. Cribraria cribraria Linne var melwardi Iredale Suu,Malaita Id
24. Luria isabella Linne var atriceps Schilder Tulagi Id.
25. Callistocypraea aurantium Gmelin Malaita Id. * Note- This
    specimen was presented to me by a trader
    named Adams, a direct descendent of
    Adams, the last survivor of the "Mutiny
    on the Bounty" on Pitcairn Island.
26. " testudinaria Linne var testudinosa Perry Santa Anna Id.
27. Talparia argus Linne var. ventricosa Gray Santa Anna Id.
28. " talpa Linne var saturata Dautzenberg Rennell Id.
29. Mauritia arabica Linne var niger Roberts China Strait, Papua
30. " mauritiana var calxequin Mellvill-Standen
    Florida Id. & Tulagi Id. & Rennell Id
    & Samarai, and Port Moresby, Papua
31. " arabica reticulata Martyn China Strait, Papua
32. Cypraea tigris Linne var. lyncichroa Melvill Choiseil Id. &
    Port Moresby, Papua
33. " lynx Linne car. caledonica Crosse China Strait,Papua
34. " carneola Linne var. propinqua Garrat Tulagi Id. & China
    Strait, Papua
35. Pustularia childreni Gray var lemurica Schilder Port Moresby,
    Papua
36. Cribraria cribraria catholicorum Schilder & Schilder Suu,
    Malaita Id.,
37. Palmadusta gracilis gracilis Gaskoin China Strait, Papua
38. Erosaria erosa Linne var phagedaina Melvill Port Moresby,
    Papua

(con.)

39. Mauritia eglantina Duclos Tulagi Id. & China Strait, Papua
40. Palmadusta ziczac Linne var vitata Deshayes Santa Anna Id.
41. Cypraea vitellus Linne var. polynesia Schilder Tulagi Id., & China Strait, Papua

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PUBLICATIONS RECEIVED

Comparative Genital Anatomy of Some African Achatinidae (Pulmonata) by Albert R. Mead- Bulletin of the Museum of Comparative Anatomy at Harvard College Vol. 105, No.2 73 pages and 9 plates.
A very thorough and scholarly paper on the anatomy of many species of numerous genera.

Proceedings of the Malacological Society of London- Vol. 28, parts 4 & 5 18 Dec.,1950. A large issue of 96 pages and a number of plates. The important papers included are: English Eocene & IOligocene Cardiidae by W.E. Tremblett; Observations on Limapontia by H.E. Quick; The Octopoda of the Oxford University Cayman Expedition;by Grace Pickford; Notes on Some Molluscan Species from the Far East by F.E. Eames; On the systematic position of the genus Hercynella by Henri & Genevieve Termier; Description of a Giant Squid stranded near Abdrdeen by Bennet B. Rae; The recent extension in the distribution of the American slipper limpet, Crepidula fornicata into Lyme Bay in the English Channel by J.H. Orton; Secondary Symmetry in Gastropods By N.B. Eales; Some Bermudian Ellobiidae By F. Haas; Succineis Studies By Nils Hj. Odhner

Basteria- Vol. 14, No.3 en 4, pag. 33-64 15 Oct,,1950 The important papers in this issue a re: Rapid methods for obtaining permanent mounts of radulae By A.D.J. Meeuse; Malacologische aantekeningen 6. Zonitoides excavatus (Bean)- Summary By L.A.W.C. Venmans ; De vespreiding van de mollusken in de duinplasjes tussen Den Helder en Schoorl Summary By C. den Hartog; Een merkwaardige afzetting van landmollusken in de Slufter op Texel By A.C. van Bruggen; What is Zonites nicula Mousson ? By W.S.S. van Brenthem Jutting.

Les Types de la Collection Lamarck au Museum de Geneve. Mollusques vivants I By G. Mermod.
This should be a very valuable paper and should be in all libraries. The figures of these types are photographic plates and are excellent. 70 pages and 50 illustrations. It is from the Revue Suisse De Zoologie Tome 57 No.34, Dec. 1950. No mention is made of the price and whether or not it is possible to purchase this part as a separate.

Recent species of the prionodont pelecypod Cucullaea By David Nicol Reprinted from Journal of the Washington Academy of Sciences Vol. 40, No. 10, Oct. 15,1950. An excellent paper 1 plate showing 6 figures and one map showing distribution.

Report of the Committee On a Treatise On Marine Ecology and Paleoecology 1949-1950 Harry S. Ladd, Chairman Vice-Chairmen Gordon Gunter for Biology; Kenneth E. Lohman for Geology; Roger Revelle for Oceanography. A carefully prepared report containing a nu,ber of papers. 59 pages. Price $1.00 and obtainable from Division of Geology & Geography- National Research Council, 2101 Constitution Ave., Washington 25, D.C.

A New species of Placostylus from San Cristobal, Solomon Islands By William J. Clench. Torreia Num. 15, Oct.20,1950

Auckland Museum Conchology Club Bulletin No. 6, Nov. 1950 Auckland, New Zealand. This is a credit to our New Zealand cousins. It is a neatly mimeographed booklet and stapled in heavy folders with printed cover. One novelty is the two hand colored plates. The important papers in this issue are: Colour variation in Pteronotus (Pterochelus) Eos (Hutton 1873) By N.S. Richardson; Tathys tryoni By Wm. P. Thomson; In Search of the Mayor Island paper Nautilus By Gordon Williams; A Trip to Orewa, May,1950 By T.P. Warren; A note on the marine Caddis-Fly By K.J. Wise; A note on the feeding habits of the Paryphantidae (Mollusca) with special reference to canabalism in Rhytida By R.K. Dell; Notes of Interest By E.N. Gardner; Light without heat By Bernard J. Bowden; Placostylus snails of Lord Howe Island By E.N. and N.W. Gardner; Trawling Observations by A.S. Voss; A visit to a coral island By J. Wyatt; Collecting at Kawau Island By Robert L. Mathews; Collecting in Doubtless Bay by N.S. Richardson.

Boletin De Historia Natural -organo de la Sociedad " Felipe Poey" Those wishing this new publication should write to Dr. Carlos Guillermo Aguayo, Museo Poey, Universidad De La Habana, Cuba.
Vol. 1, No.2 Sept.,1950. No attempt will be made here to review or mention the various articles on birds, fishes, and other groups although some of them are very good as in this issue with a fine color plate of birds.
Caracoles Trotamundos por C. Guillermo Aguayo is an interesting paper on a number of species including a full accountof the distribution of Achatina fulica illustrated with map as well as a plate showing the species. Dr. Aguayo also reviews and discusses the proposals of Dr. H.B. Stenzel of the University of Texas " Proposed Uniform Ending for Names of Higher Categories in Zoological Systematics" Science, Vol. 112, No. 2899, July 21,1950. Dr. Stenzel's proposed system is well deserving of the careful study of all.
One other short article in this issue pertains to Mollusca- Simbiosis Entre Peces y Moluscos By Luis Howell Rivero.
-do- Vol. 1,No.3, Nov.,1950. Among the numerous excellent papers in this issue is one by Dr. Aguayo " Nomenclatura Zoologica". Too many serious questions are raised in this paper to discuss here, but this paper should be read by all persons interested in systematic work in any group.

Academy News Letter Nu,ber 133 Jan. 1951- the monthly letter of the California Academy of Sciences contains an excellent account both interesting, scientific and amusing on the octopuses in the Steinhart Aquarium. And in case anyone may be concerned re the spelling I quote from this article - " Merriam-Webster, New Collegiate Dictionary, p. 582, oc'topus, pl. oc'topuses, with octo'podes second and octo'pi third choices"

The Invertebrate Fauna of Ozark Caves By Leslie Hubricht. Bulletin 12 National Speleological Society, November,1950. An interesting list of mollusks as well as the other groups is given.

MINUTES OF THE CONCHOLOGICAL CLUB OF SOUTHERN CALIFORNIA * Jan.,1951

The Conchological Club of Southern California began 1951 with its regular pot-luck dinner and meeting at the county museum on Jan. 2nd. The meeting was called to order at 7:30 by the president, Mrs. John Q. Burch. After a brief discussion of new rules for conducting the meetings, it was moved, seconded and carried that the reading of the secretary's minutes be omitted.

Mrs. Burch then announced the following as committee chairmen for the ensuing year:

Program	Mr. Caruthers
Nomenclature	Dr. Gregg
Field Trips	Mr. Besson
Membership	Mr. Kanakoff

Under correspondence received: Phil Spicer is greatly improved in health, and Mr. and Mrs. Spicer now have 6 grandchildren. Mrs. Faye Howard, a long time member of the club has recently moved to the Pacific Palisades, and her daughter Susan now living in Northern California has a baby daughter of her own. Mrs. John Q. Burch had a nice letter from Dr. Asela Franco who has returned to her home in Ceby, Philippines. Dr. Franco sent her best wishes to the members of the club. A letter from James McNamee of Gualala tells of collecting 7½ inch *Haliotis wallalensis* on South Beach near Anchor Bay.

John Burch read a brief by Dr. A. Myra Keen of Opinion #124 of the International Commission of Zoological Nomenclature holding that " Bulla" can be (and is) revived to cover, among other species, our *B. gouldiana* , which has recently been called *Vesica*, *Bullaria* etc.

Under the informal discussion preceeding the program of the evening Morris Schick brought up for record that while one specimen of *Cypraea moneta* is considered a good catch at Honolulu his wife had taken 20 during her years stay there, a mark which has never been equalled.

New publications at hand were:

1. Bulletin of the Southern California Academy of Science containing a paper by George Kanakoff on the shells of San Clemente in which he described a new species , *Micrarionta agnesae.*
2. Leaflets in Malacology- West Coast *Crepidula* wherein Dr. S.S. Berry published a new species, *Crepidula coei.*

These matters attended to, Program Chairman, Caruthers introduced the speaker of the evening Dr. Howard Hill who gave an interesting talk on Turritellidae, which he illustrated with several trays of specimens. He concluded the meeting by distributing specimens of a small Alaskan species, *Turritellopsis acicula.*

Some of the members who had collected at Guaymas supplemented Dr. Hill's paper on the classification of the *Turritellas* there, with accounts of color forms and the manner of finding *Turritella* there.

John Burch then read a letter from Walter Eyerdam who is now working in Haliotidae. The highlight of Mr. Eyerdam's paper was a statement that among the abalones he obtained at Santa Barbara last spring were 3 which he considers to be *Haliotis ponderosa* C.B. Adams and that they are separable from *H. rufescens* at a glance. The meeting adjourned after the usual manner. 29 members and guests present. . Elsie Chace, Secretary

The Guaymas,Mexico delegation are really doing a fine lot of collecting from the latest reports. Among those there now are Mr. Andrew Sorensen, Mr. and Mrs. John Strohbeen, from Pacific Grove and Santa Cruz, California respectively. Among those from the East are Miss Helen Bruton and Mr. and Mrs. Maynard Merrill of Traverse City, Michigan. Al Hoffman, who owns and operates the Sea Gull Shell Shop on Fisherman's Wharf, Monterey,Calif. was in for a visit going and returning from Guaymas and brought the news of really fine collecting. All visiting Monterey should not fail to visit Al's interesting little shell shop. We expect the Guaymas crowd to enjoy a lot of " you know me" etc. from other shell collectors when they return with the winter's loot from what is claimed to be the finest shell collecting spot on earth. Some say as many shells come in on Sanibel Island,Florida and also on the island of Mauritius, East Indies, but in any event any collector who spends a month at Guaymas would have to charter a freight car if he expected to bring back his entire catch of really beautiful shells. The climate is balmy and I hope the Los Angeles Chamber of Commerce will excuse the comment that a lot of us who dressed this morning to the tune of chattering teeth wished we were with them.

Mr. and Mrs. John G. Saxby paid us a welcome visit last week. They have a fine stock of genuine rarities in the way of shells in their shop at 2734 Taylor St., San Francisco. Any shell collector who visits San Francisco and fails to see the Saxby shop is missing something.

Our local group of shell collectors is increasing steadily. Al J. Strub formerly of Illinois is now a permanent resident of our great state having purchased a new home at 775 Ohio Ave., Long Beach, Calif. The Strub collection is now here and in order. Al is not an easy man to sell though for the simple reason that he already has most of the really fine shells of the world.

Bud Erickson, another former resident of Illinois dropped in for a chat last week. Bud has been a steady correspondent of ours and an enthusiastic shell collector. Of course, I wasn't really surprised at the reply when I asked him " How long do you plan to stay with us ?". His stay will be permanent. Wonder how cold it does get back in Illinois ?

Robert J. Drake and family are now living at Granja Batuquito, Hermosillo , Sonora, Mexico. Bob is working to complete his checklist of the non marine Mollusca of Mexico. He asks to include all possible locality records and will appreciate letters from all collectors having shells from Mexico.

Note from the McGinty Family of Boynton Beach, Fla. mentioning " unusual weather" , I thought that term was the copyrighted property of California. Dr. Pilsbry is spending the winter in Florida. He and his daughter Elizabeth have a cottage at Lantana where they will remain until next April.

SHELL AND WILD LIFE SHOW to be held at St. Petersburg,Florida March 6 to March 11,1951 Inc. Note from Mr. Joseph A. Conkling, President of the St. Petersburg Shell Club gives us the story. Wish we could attend and all who can should by all means do so.

Another thing I would like to see is Simon DeMarco's Florida Marine Museum. 22,000 different species of shells on display should make this a port well worth visiting by all shell lovers.

We have the New York Shell Club Notes and are pleased to read of the activities of this active shell club.

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CONCHOLOGICAL CLUB OF SOUTHERN CALIFORNIA

SUBSCRIPTION $2.50 PER YEAR.

WE ARE NOW MEETING THE FIRST TUESDAY OF EVERY MONTH AT 7:30 P.M., AT THE LOS ANGELES COUNTY MUSEUM, EXPOSITION PARK, LOS ANGELES, CALIFORNIA. ALL INTERESTED PERSONS ARE CORDIALLY INVITED.

PLEASE MAIL ALL NEWS TO YOUR EDITOR - JOHN Q. BURCH
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BILATERAL ASYMMETRY IN MOLLUSCA

BY

JOSHUA L. BAILY, JR.

THE WORLD OF OCEANIC LIFE IS DIVIDED FOR THE PURPOSES OF ECOLOGIC STUDY INTO THREE GREAT GROUPS. FIRST, THERE ARE THE PLANKTON, WHICH DRIFT WITH THE CURRENT, AND HAVE NO VOICE IN THE DETERMINATION OF THEIR DESTINATION. BECAUSE THEY LIVE IN A WORLD OF LIQUID PRESSURE, EQUAL IN ALL DIRECTIONS, THEY TEND TO DEVELOP UNIVERSAL SYMMETRY - THAT IS, THEY TEND TOWARD A GLOBOSE FORM. SECOND, THERE ARE THE BENTHOS, WHICH ARE FIXED TO THE SUBSTRATUM AND, THEREFORE, TEND TO DEVELOP RADICAL SYMMETRY ABOUT AN AXIS NORMAL TO THE PLANE OF FIXATION - THEY TEND TOWARD A CYLINDRICAL FORM. FINALLY, THERE ARE THE NEKTON, THOSE FORMS WHICH MOVE ABOUT MORE OR LESS VIGOROUSLY UNDER THEIR OWN MOTIVE POWER, AND WHICH TEND TO DEVELOP BILATERAL SYMMETRY.

THE SNAILS, WHICH ARE THE OBJECTS OF MY SPECIAL STUDY, ARE ESSENTIALLY LOCOMOTIVE ORGANISMS, AND THEIR SYMMETRY IS BILATERAL, BUT THEIR RATE OF LOCOMOTION IS SO SLOW THAT PERFECT SYMMETRY IS NOT ABSOLUTELY NECESSARY, AND IN ORDER THAT THE SOFT PARTS MAY BE MADE AS COMPACT AS POSSIBLE, THE PAIRED ORGANS TEND TO BE MUCH SMALLER ON ONE SIDE THAN ON THE OTHER, OR EVEN TO DISAPPEAR ALTOGETHER. THIS REDUCTION IN SIZE HAS COME ABOUT AS THE RESULT OF A SPIRAL TORSION, WHICH IS EXHIBITED MOST CLEARLY IN THE VISCERAL MASS, AND WHICH HAS IMPRESSED ITSELF ON THE SHELL. MOST SHELLS ARE DEXTRALLY COILED, ALTHOUGH SINISTRAL SHELLS ARE NOT ALTOGETHER UNCOMMON. A FEW SHELLS ARE DISCOID, SOME PATELLIFORM AND HAVE

LOST ALL EVIDENCE OF ASYMMETRY, BUT EXAMINATION OF THE VISCERA REVEALS SIGNS OF HELICO-SPIRAL COILING, FROM WHICH WE MAY CONCLUDE THAT THE SYMMETRY OF THE SHELL HAS BEEN SECONDARILY DEVELOPED.

CLOSELY RELATED TO THIS VISCERAL TORSION IS THE SIMILAR BUT QUITE DISTINCT TORSION OF THE PALLIAL ORGANS. AS THE RESULT OF THIS TORSION THE GILLS, WHICH IN THE PRIMITIVE ANCESTRAL MOLLUSC POINTED BACKWARD, NOW COME TO POINT FORWARD OVER THE HEAD, AND BECAUSE THE AXIS ABOUT WHICH THE PALLIAL TORSION OCCURS IS VERTICAL, THE GILL THAT WAS ORIGINALLY ON THE RIGHT SIDE MOVES OVER ONTO THE LEFT SIDE, WHILE THE ORIGINAL LEFT GILL GENERALLY DISAPPEARS ENTIRELY, BUT IN ALL THE FAMILIESIN WHICH IT PERSISTS EXCEPT ONE, IT IS GREATLY REDUCED IN SIZE. MANY OF THE INTERNAL ORGANS, SUCH AS THE AURICLES OF THE HEART, THE KIDNEYS, AND THE GONADS, UNDERGO A SIMILAR TORSION AND DEVELOPMENT.

THE EFFECT OF THIS TORSION ON THE NERVOUS SYSTEM IS PECULIAR. THE PRIMITIVE CENTRAL NERVOUS SYSTEM CONSISTED OF TWO CORDS, ARISING FROM OPPOSITE SIDES OF THE BRAIN, AND EXTENDING BACKWARD THE LENGTH OF THE BODY, ONE ON THE RIGHT SIDE AND ONE ON THE LEFT. BUT AS THE RESULT OF PALLIAL TORSION THE CORDS COME TO CROSS EACH OTHER AT A POINT ABOUT MIDWAY BETWEEN THE TWO EXTREMES. AT THIS POINT OF CROSSING EITHER OF THE CORDS MAY LIE ABOVE THE OTHER, THE POSITIONAL RELATIONSHIP OF THE CORDS BEING DETERMINED BY THE DIRECTION OF TORSION. THIS CONDITION IN WHICH THE NERVE CORDS CROSS EACH OTHER IS KNOWN AS CHIASTONEURY.

AS A RULE THE VISCERAL TORSION AND THE PALLIAL TORSION ARE IN THE SAME DIRECTION, BUT THIS IS NOT ALWAYS THE CASE. THERE ARE A FEW GENERA IN WHICH THE SHELL AND VISCERA ARE SINISTRAL, WHILE THE CHIASTONEURY AND PALLIAL COMPLEX ARE DEXTRAL, AND THERE ARE ALSO A FEW GENERA IN WHICH THE SHELL IS DEXTRAL AND THE SOFT PARTS SINISTRAL. THIS CONDITION IS KNOWN AS HYPERSTROPHE.

THE EXPLANATION OF HYPERSTROPHE IS RATHER SIMPLE. THE ORIGINAL COILING OF THE SHELL WAS IN A FLAT PLANE, AND TO ACQUIRE GREATER COMPACTNESS THE SPIRE CAME TO PROTRUDE ON ONE SIDE--WHICH SIDE SEEMS TO HAVE BEEN DETERMINED LARGELY, BUT NOT ENTIRELY, BY CHANCE. THE SIDE ON WHICH THE SPIRE ORDINARILY APPEARS BECOMES DEPRESSED IN HYPERSTROPHIC SNAILS AND SO IS TRANSFORMED INTO A PSEUDO-UMBILICUS, WHILE THE TRUE UMBILICUS BECOMES A PSEUDO-SPIRE. THIS TRANSFORMATION OF THE PRIMITIVE DISCOID SHELL INTO ONE EXHIBITING DEXTRAL OR SINISTRAL ASYMMETRY IS IN THEORY QUITE INDEPENDENT OF THE PALLIAL TORSION, AND THE SURPRISING THING IS NOT THAT HYPERSTROPHE OCCURS AT ALL BUT THAT IT DOES NOT OCCURE MORE OFTEN. A GOOD EXAMPLE OF A HYPERSTROPHIC GENUS IS CARINIFEX.

PERHAPS IT WILL HELP US TO UNDERSTAND THE HOMOLOGY OF THE HYPERSTROPHIC SPIRE WITH THE UMBILICUS OF THOSE SPECIES WHICH LACK HYPERSTROPHE IF WE THINK OF JAMES WHITCOMB RILEY'S POEM ABOUT THE RAGGEDY MAN, I THIK IT WAS, WHO HAD A WART ON HIS CHIN WHICH HE SAID WAS A DIMPLE TURNED OVER. SO IS THE HYPERSTROPHIC SPIRE AN UMBILICUS TURNED OVER.

A FURTHER DEVELOPMENT OF HYPERSTROPHE IS KNOWN AS HETEROSTROPHE. IN THIS CASE A SNAIL WHICH HAS IN ITS EMBRYONIC DEVELOPMENT A HYPERSTROPHIC SHELL REVERSES THE DIRECTION OF ITS COIL IN ITS ADOLESCENT STAGE. IT ALMOST SEEMS AS IF THE SNAIL SHARED THE FEELINGS OF THE WHITE KNIGHT, WHO SAID IN THE POEM WHICH HE RECITED TO ALICE:

> "AND IF BY ANY CHANCE I PUT MY FINGERS INTO GLUE,
> OR MADLY SQUEEZE A RIGHT HAND FOOT INTO A LEFT HAND SHOE,
> OR IF I DROP UPON MY TOE AN EXTRA HEAVY WEIGHT.........."

ANYONE WHO HAS EVER SQUEEZED A RIGHT FOOT INTO A LEFT SHOE CAN READILY APPRECIATE THE DISCOMFORT FELT BY THE SNAIL WITH A RIGHT HANDED BODY, DOOMED TO WEAR A LEFT HANDED SHELL, AND CAN WELL

UNDERSTAND WHY IT SHOULD SEEK TO RECONSTRUCT ITS HOME ON A PATTERN MORE CONDUCIVE TO ITS PHYSICAL EASE. A GOOD EXAMPLE OF A HETEROSTROPHIC GENUS IS PYRAMIDELLA.

THE DIRECTION OF TORSION CAN BE DETECTED AS EARLY AS THE SECOND EMBRYONIC CLEAVAGE. THE FOUR CELLS INTO WHICH THE EMBRYO IS DIVIDED BY THE FIRST TWO CLEAVAGES LIE ON A HORIZONTAL PLANE, AND SURFACE TENSION REQUIRES THAT ONE DIAGONAL PAIR OF CELLS SHALL BE IN CONTACT WITH EACH OTHER, AND SHALL KEEP THE OTHER DIAGONAL PAIR APART. THE GROOVE BETWEEN THE DIAGONAL CELLS IN CONTACT MAY SLOPE FORWARD EITHER TO THE RIGHT OR LEFT, AND THE DIRECTION OF TORSION IS DETERMINED ACCORDINGLY. BUT THERE ARE REASONS FOR BELIEVING THAT THE DIRECTION OF TORSION IS DETERMINED BY GENETIC FACTORSBEFORE ANY CLEAVAGE HAS TAKEN PLACE AT ALL.

WHEN THE SPERM ENTERS THE EGG IT PERFORMS TWO CLOSELY RELATED BUT QUITE DISTINCT FUNCTIONS. FIRST, BY PENETRATING THE VITELLINE MEMBRANE IT CAUSES THE FERTILIZINE TO BE RELEASED AND STIMULATES THE INITIATION OF SEGMENTATION. THEN SOME TIME LATER IT UNITES WITH THE NUCLEUS OF THE EGG AND DELIVERS THERETO ITS QUOTA OF CHROMOSOMATIC MATERIAL WHICH IN TURN DETERMINES THE GENETIC COMPOSITION OF THE DEVELOPING EMBRYO. NOW THERE IS NO REASON WHY IN SOME CASES THE SPERM MIGHT NOT DIE AFTER COMPLETING THE FIRST OF THESE ACTS BUT BEFORE BEGINNING THE SECOND OF THEM. DR. ERNEST JUST, OF HOWARD UNIVERSITY, HAS TOLD ME THAT IN THE MARINE WORMS THERE IS A GENUS KNOWN AS RHABDITIS IN WHICH THE SOLE FUNCTION OF THE SPERM IS TO INITIATE SEGMENTATION. IT ALWAYS DIES BEFORE IT HAS A CHANCE TO FUSE WITH THE NUCLEUS OF THE EGG. THE DIPLOID NUMBER OF CHROMOSOMES IS RESTORED BY THE POLAR BODY WHICH RETURNS TO THE EGG AFTER THE DEATH OF THE SPERM. THUS, IT WILL BE SEEN THAT THE HEREDITARY CHARACTERS OF THE EMBRYO ARE DERIVED ENTIRELY FROM THE MOTHER.

IN THE CASE OF THE SNAIL THE SPERM EVENTUALLY DOES UNITE WITH THE EGG NUCLEUS, SO THAT THE HEREDITY OF THE EMBRYO IS BIPARENTAL, BUT THIS UNION IS DELAYED UNTIL SOME TIME AFTER THE FIRST SEGMENTATION HAS BEEN INITIATED: THE CHROMOSOMES INTRODUCED BY THE SPERM, THEREFORE, HAVE NO VOICE IN DETERMINING THOSE EMBRYONIC TRAITS WHICH HAVE BEEN SETTLED ALREADY WHEN SEGMENTATION BEGINS, AND THE DIRECTION OF COIL OF SHELL SEEMS TO BE SUCH A TRAIT. LET US ASSUME A HYBRID EMBRYO WHICH RECEIVES A DOMINANT GENE FROM THE SPERM AND A RECESSIVE GENE FROM THE EGG, IF THE TRAIT DETERMINED BY THESE GENES IS DETERMINED AFTER NUCLEAR FUSION HAS OCCURRED, THE EMBRYO WILL OF COURSE EXHIBIT THE DOMINANT FORM OF THE TRAIT, BUT IF ON THE OTHER HAND THE TRAIT HAS BEEN ALREADY DTERMINED WHEN SEGMENTATION BEGINS IT FOLLOWS THAT THE DOMINANT GENE CAN HAVE NO PART IN THIS DETERMINATION, OR TO PUT IT IN OTHER WORDS, THE EMBRYO WILL BE PHENOTYPICALLY RECESSIVE BUT GENOTYPICALLY DOMINANT. IT WILL HAVE THE FORM OF A RECESSIVE BUT WILL PRODUCE THE KIND OF OFFSPRING THAT WE WOULD NATURALLY EXPECT FROM A DOMINANT.

THIS FORM OF INHERITANCE IS CALLED MATROCLINAL, AND IT SEEMS TO BE VERY RARE. OFFHAND I CAN RECALL ONLY TWO OTHER ORGANISMS IN WHICH MATROCLINAL INHERITANCE OCCURS. ONE OF THESE IS THE TROPICAL FISH MOLLIENSIA AND THE OTHER IS THE FRESH WATER SHRIMP GAMMARUS.

THE LATE DR. A. E. BOYCOTT AND HIS ASSOCIATES WERE FORTUNATE IN DISCOVERING A POPULATION OF LYMNAEA PEREGRA IN WHICH A SINISTRAL MUTATION HAD OCCURRED. BY BREEDING THIS STOCK THROUGH SEVERAL GENERATIONS THEY OBTAINED PEDIGREES WHICH COULD BE EXPLAINED ON MENDELIAN PRINCIPLES ONLY IN ONE WAY— BY ASSUMING THAT IN THIS SPECIES INHERITANCE WAS MATROCLINAL FOR CERTAIN TRAITS.

ANOTHER INTERESTING EXAMPLE OF ASYMMETRY OCCURS IN THE NORMALLY DEXTRAL GENUS CAMPELOMA, IN WHICH SINISTRAL MUTATIONS OCCUR MORE FREQUENTLY THAN IN MOST OTHER GENERA. THIS GENUS IS OVO-VIVIPAROUS, AND FRESHLY GRAVID SPECIMENS MAY CONTAIN SIXTY OR SEVENTY INTRA-UTERINE YOUNG, SO TIGHTLY CROWDED TOGETHER THAT THERE IS NO ROOM FOR THEM TO INCREASE IN SIZE, AND GROWTH FOR A FEW OF THEM IS

MADE POSSIBLE ONLY BY ELIMINATION OF THE OTHERS. THIS ELIMINATION IS ACCOMPLISHED PRESUMABLY BY CANNIBALISM, AND IT IS CONTINUED UNTIL THERE MAY BE LESS THAN HALF A DOZEN INDIVIDUALS LEFT, YET THESE ARE CROWDED TOGETHER IN THE UTERUS AS TIGHTLY AS THEY EVER WERE. WHEN THEY ARE FINALLY LAID THEY ARE SO LARGE AS TO MAKE ONE WONDER HOW THE SHELLS COULD EVER HAVE BEEN RETAINED WITHIN THAT OF THE PARENT.

THE PECULIAR FEATURE OF THIS GENUS IS THAT THE PROPORTION OF SINISTRAL SPECIMENS IS SIGNIFICANTLY GREATER AMONG THE INTRA-UTERINE YOUNG THAN AMONG THOSE WHICH HAVE BEEN LAID AND ARE LEADING AN INDEPENDENT EXISTENCE, WHICH SEEMS TO INDICATE THAT THE ELIMINATION OF THE INTRA_UTERINE YOUNG IS DIRECTED SELECTIVELY AGAINST THE SINISTRAL INDIVIDUALS. THIS MAY INDICATE AN ORGANIC WEAKENSS OF THE SINISTRAL SHELLS, OR IT MAY BE, AS THE LATE DR. T.D.A. COCKERELL SUGGESTED, THAT IT IS TO THE ADVANTAGE OF THE EMBRYO TO BE COILED IN THE SAME DIRECTION AS THOSE WHICH SURROUND IT. THE EMPIRICAL INVESTIGATION OF THIS THEORY WOULD REQUIRE ALSO A SPECIES THAT WAS NORMALLY BOTH SINISTRAL AND OVO-VIVIPAROUS, AND I KNOW OF NO SUCH SPECIES. BUT DR. COCKERELL WAS QUITE CORRECT IN CALLING ATTENTION TO AN INSTANCE IN WHICH THERE IS APPARENTLY NO SURVIVAL VALUE IN DIRECTION OF COIL FOR THE INDIVIDUAL, BUT IN WHICH IT IS DEFINITELY TO THE ADVANTAGE OF THE POPULATION TO HAVE ALL INDIVIDUALS COILED IN THE SAME DIRECTION. THIS CONDITION OCCURS IN THE LAND SNAILS OF THE FAMILIESPARTULIDAE AND ACHATINELLIDAE OF THE SOUTH SEA ISLANDS. LIKE MOST OTHER FAMILIES OF LAND SNAIL THEY ARE HERMAPHRODITIC AND ENGAGE IN RECIPROCAL COPULATION AFTER WHICH BOTH INDIVIDUALS PRODUCE OFFSPRING.

SINCE IN MANY SPECIES OF THESE FAMILIES THE SHELLS AND SOFT PARTS ARE INDIFFERENTLY DEXTRAL OR SINISTRAL IT IS POSSIBLE FOR COPULATION TO TAKE PLACE BETWEEN INDIVIDUALS COILED IN OPPOSITE DIRECTIONS, BUT OWING TO THE REVERSAL OF THE POSITION OF THE EXTERNAL COPULATORY ORGANS IT WILL BE DIFFICULT FOR SUCH A PAIR TO ENGAGE IN RECIPROCAL COPULATION. CONSEQUENTLY IN THE LONG RUN COPULATIONS BETWEEN HETEROGENEOUSLY COILED SNAILS WILL PRODUCE FEWER PROGENY THAN THOSE BETWEEN HOMOGENEOUSLY COILED SNAILS, AND A POPULATION OF SNAILS ALL COILED IN THE SAME DIRECTION WILL HAVE AN ADVANTAGE OVER ONE IN WHICH BOTH DIRECTIONS OF COIL ARE REPRESENTED. THUS IF A VALLEY IS OCCUPIED BY TWO SPECIES OF SNAIL, ONE OF WHICH IS HOMOGENEOUSLY AND THE OTHER HETEROGENEOUSLY COILED, THE FORMER WILL EVENTUALLY SUPPLANT THE LATTER, PROVIDED, OF COURSE, THAT ALL OTHER FACTORS ARE EQUAL. SIMILARLY, IF THE VALLEY BE POPULATED BY A SINGLE HETEROGENEOUSLY COILED SPECIES, AND IF THERE BE A DISCREPANCY BETWEEN THE NUMBER OF DEXTRAL AND SINISTRAL SPECIMENS, IT FOLLOWS THAT THE MINORITY COMPONENT WILL HAVE MORE DIFFICULTY IN FINDING LIKE_COILED PARTNERS, AND WILL, THEREFORE, NOT ONLY HAVE FEWER PRODUCTIVE SNAILS BUT WILL PRODUCE FEWER EGGS PER SNAIL. THE HETEROGENEOUS POPULATION WILL, THEREFORE, TEND TO BECOME HOMOGENEOUS BY THE ELIMINATION OF ITSMINORITY COMPONENT. FOR THIS REASON, IN THE VALLEYS OF THE SOUTH PACIFIC ISLANDS WE FIND THAT THE POPULATIONS TEND TO BE EXCLUSIVELY DEXTRAL OR SINISTRAL: POPULATIONS IN WHICH THE TWO ARE EQUALLY APPORTIONED ARE VERY RARE.

NOW LET US MAKE THE PURELY GRATUITOUS POSTULATION THAT THE DEXTRAL INDIVIDUALS TEND TO LIVE LONGER THAN THE SINISTRAL INDIVIDUALS. I AM NOT AWARE THAT ANY EXPERIMENTAL EVIDENCE EXISTS WHICH MAY EITHER PROVE OR DISPROVE THIS ASSUMPTION. BUT IF EITHER FORM SHOULD BE FOUND TO HAVE A GREATER LONGEVITY, THAT FACT WOULD BE A DEMONSTRATION THAT IT WAS MORE FIT TO SURVIVE AS A GROUP OF INDIVIDUALS.

BUT FITNESS TO SURVIVE AS A POPULATION IS A DIFFERENT MATTER. IF, UNDER THE ABOVE POSTULATED CIRCUMSTANCE, A PURELY FORTUITOUS OCCURRENCE MIGHT REDUCE THE NUMBER OF DEXTRAL INDIVIDUALS, SO THAT THE ADVANTAGE OF LONGEVITY WOULD NOT BE SUFFICIENT TO OVERCOME THE ADVANTAGE OF PREPONDERANCE OF NUMBER, NOW HELD BY THE SINISTRAL COMPONENT. IN SUCH A CASE THE ELEMENT IN THE POPULATION MOST FIT TO SURVIVE AS INDIVIDUALS WOULD NOT BE THE ELEMENT MOST FIT TO SURVIVE AS A POPULATION. THIS, I THINK, IS THE REAL MEANING OF THE TERM "DOLOGENESIS" FIRST PUBLISHED SOME YEARS BY A WRITER WHOSE NAME NOW ELUDES ME,

AND WHO RATHER CARELESSLY DEFINED IT AS THE SURVIVAL OF THE UNFIT. OF COURSE THERE IS NO SUCH THING AS THE SURVIVAL OF THE UNFIT, LOOSELY EXPRESSED IN THIS WAY, BECAUSE THE FACT OF SURVIVAL IS SUFFICIENT TO DETERMINE FITNESS TO SURVIVE. BUT IT IS QUITE POSSIBLE, THOUGH PROBABLY IT DOES NOT OFTEN OCCUR THAT THE ELEMENT IN A POPULATION MOST FIT TO SURVIVE AS A GROUP OF INDIVIDUALS WILL NOT SURVIVE AS A POPULATION. IN SUCH A CASE, THE ELEMENT WHICH DISAPPEARS FIRST MAY IN SPITE OF THAT FACT, STILL BE THE PROGENITORS OF THE COMING GENERATION. THIS IS A POSSIBILITY WHICH HAS NOT BEEN DISCUSSED IN ANY WORK ON THEORETIC EVOLUTION THAT I HAVE EVER READ, YET IT IS A VERY IMPORTANT ONE, AND INDICATES THE DESIRABILITY OF LABORATORY EXPERIMENTATION IN BREEDING OF SPECIES WHICH ARE HERMAPHRODITIC AND IN WHICH REVERSAL OF ASYMMETRY OCCURS, TO DETERMINE WHAT LIGHT IF ANY IT MAY THROW ON THE PROBLEM OF NATURAL SELECTION AND WHAT CONSTITUTES FITNESS TO SURVIVE.

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IN MEMORIUM

DR. FRANK MACE MACFARLAND, EMERITUS PROFESSOR OF HISTOLOGY AND MICROSCOPIC ANATOMY AT STANFORD UNIVERSITY AND A FACULTY MEMBER FOR ALMOST 60 YEARS, DIED IN SAN FRANCISCO FEBRUARY 21ST, WHILE ATTENDING THE FIRST MEETING OF CALIFORNIA ACADEMY OF SCIENCES IN THE NEW AUDITORIUM HE HAD HELPED TO PLAN. HE WOULD HAVE BEEN 82 ON JUNE 19TH.

DR. MACFARLAND WAS BORN IN CENTRALIA, ILLINOIS TO DR. & MRS. PARKER M. MACFARLAND. HIS MOTHER WAS THE FORMER SARAH ELIZABETH MACE.

IN 1889 DR. MACFARLAND RECEIVED HIS A.B. DEGREE FROM DEPAUW UNIVERSITY; IN 1893, HIS M.A. FROM STANFORD, AND IN 1896, HIS PH.D. FROM UNIVERSITY OF WURZBURG. IN EUROPE HE STUDIED IN CENTERS OF LEARNING, INCLUDING FREIBURG, ZURICH AND THE FAMOUS BIOLOGICAL STATION IN NAPLES.

DR. MACFARLAND'S GENIALITY AND UNUSUALLY WIDE SCIENTIFIC INTERESTS BROUGHT HIM VAST AND CLOSE ACQUAINTANCESHIPS WITH THE MOST DISTINGUISHED BIOLOGISTS OF HIS TIME. IN LATER YEARS HIS REMINISCENCES OF UNIVERSITY LIFE AND PERSONALITIES IN EUROPE AT THE CLOSE OF THE 19TH CENTURY DELIGHTED HIS YOUNGER COLLEAGUES.

EARLY IN 1892 DR. MACFARLAND AND HIS LIFELONG FRIEND, THE LATE DR. GEORGE CLINTON PRICE (EMERITUS PROFESSOR OF ZOOLOGY AT STANFORD WHO DIED LAST YEAR AT 90), CAME TO STANFORD AS INSTRUCTORS AND ADVANCED STUDENTS LESS THAN A YEAR AFTER THE INSTITUTION OPENED.

DURING HIS LONG ASSOCIATION WITH THE UNIVERSITY DR. MACFARLAND CONTRIBUTED MUCH TO ITS DEVELOPMENT. HE PLAYED A LEADING PART IN ORGANIZING HOPKINS MARINE BIOLOGICAL STATION AT PACIFIC GROVE, AND WAS IN CHARGE THERE FROM 1910 TO 1913. HE WAS CO-DIRECTOR OF THE STATION FROM 1915 TO 1917, AND MAINTAINED AN ACTIVE INTEREST IN IT THROUGHOUT HIS LIFE.

IN 1902, DR. MACFARLAND MARRIED OLIVE KNOWLES HORNBROOK, WHO WAS GRADUATED FROM STANFORD FOUR YEARS LATER. MRS. MACFARLAND, THROUGHOUT THE COUPLE'S MARRIED LIFE, DEVOTEDLY ASSISTED HER HUSBAND AND TOOK PART IN HIS EXTENSIVE STUDIES, BOTH AS A SKILLED TECHNICIAN AND AS AN ARTIST WHOSE DRAWINGS AND DELICATE WATERCOLOR PAINTINGS ILLUSTRATED MANY OF HIS SCIENTIFIC PUBLICATIONS. MRS. MACFARLAND SURVIVES HER HUSBAND.

LONG AND INTENSIVE STUDY OF THE NUDIBRANCHIA, A LARGE GROUP OF MARINE MOLLUSKS OF BEAUTIFUL COLORS AND BIZARRE FORMS, BROUGHT DR. MCFARLAND WORLDWIDE RECOGNITION AS THE GREATEST AUTHORITY ON THE LIFE AND HABITS OF THE ANIMALS. AT HIS DEATH HE WAS COMPLETING A COMPREHENSIVE MONOGRAPH ON THE GROUP.

IN ADDITION TO MEMBERSHIP IN MANY SCIENTIFIC ORGANIZATIONS THROUGHOUT THE WORLD, PROFESSOR MACFARLAND WAS ACTIVELY ASSOCIATED WITH CALIFORNIA ACADEMY OF SCIENCES. OF THE ACADEMY HE WAS SUCCESSIVELY CORRESPONDING SECRETARY, FIRST VICE PRESIDENT AND, FOR 14 YEARS, PRESIDENT. AFTER HIS RETIREMENT FROM TEACHING, HE SERVED FIVE YEARS AS ACTING DIRECTOR OF THE MUSEUM AND OF STEINHART AQUARIUM.

IN 1946, DR. MACFARLAND BECAME HONORARY MEMBER OF THE ACADEMY, THE HIGHEST HONOR BESTOWED BY THE INSTITUTION. HE WAS HONORARY LIFE MEMBER OF NATIONAL GEOGRAPHIC SOCIETY, CORRESPONDING MEMBER OF MALACOLOGICAL SOCIETY OF LONDON, AND OF OTHER SIMILAR ORGANIZATIONS. HE WAS A MEMBER OF COMMONWEALTH CLUB, DELTA KAPPA EPSILON FRATERNITY AND NATIONAL HONORARY SOCIETIES, PHI BETA KAPPA AND SIGMA XI.

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2. MALACOLOGY - NEW STENOTHYRID GASTROPODS FROM THE PHILIPPINES (RISSOIDAE) by R. TUCKER ABBOTT, U.S. NAT. MUS., Rep. from Jl. of Wash. Acad. of Sci. 1951.
3. MALACOLOGY - TWN NEW RECENT CONE SHELLS FROM THE WESTERN ATLANTIC (CONIDAE) by Harald R. Rehder and R. Tucker Abbot, U.S. NAT. MUS., Rep. from Wash. Acad. of Sci., 1951.
4. MALACOLOGY - A NEW SPECIESOF GLYCYMERID FROM THE PHILIPPINES by DAVID NICOL, U.S. NAT. MUS., REP. FROM WASH. ACAD. OF SCI., 1951.
5. THE VENOMOUS CONE SHELLS BY R. TUCKER ABBOTT, U. S. NAT. MUS.
6. AN INVESTIGATION OF THE DECLINE OF THE NATIVE OYSTER INDUSTRY OF THE STATE OF WASHINGTON, WITH SPECIAL REFERENCE TO THE EFFECTS OF SULFITE PULP MILL WASTE ON THE OLYMPIA OYSTER (OSTREA LURIDA) by Donald L. McKernan, Vance Tarter & Roger Tollefson, State Oyster Lab., Washington, 1949.
7. CONTRIBUTIONS TO THE LIFE HISTORY OF THE JAPANESE OYSTER DRILL, TRITONALIA JAPONICA, WITH NOTES ON OTHER ENEMIES OF THE OLYMPIA OYSTER OSTREA LURIDA by W. M. Capman & A.H. Banner, Rep. from Biol. Bul., Dept. of Fisheries, Washington, 1949.
8. MOLLUSCA - A YARMOUTHIAN MOLLUSCAN FAUNA IN THE MIDCONTINENT REGION OF THE U.S. by A. BYRON LEONARD, University of Kansas Publications, 1950.
9. NAUTILUS - INTERESTING SHELLS FROM THE DELMARVA PENINSULA by Bernadine Barker Baker.
   A CLARIFICATION OF SOME CENTRAL AMERICAN UNIONIDAE by R. I. Johnson
   THE FAMILY JULIIDAE by A. D. Howard
   LAND SNAILS FROM THE GUADALUPE RANGE, TEXAS, by H.A. Pilsbry & E.P. Cheatum
   THE PRESERVATION OF SLUBS by Leslie Hubright
   SOME NOTESON HALIOTIS by Joshua L. Baily, Jr.
   A NEW SUBSPECIES OF SUCCINEA FROM JAPAN by Gordon K. Macmillan
   ADDITIONAL NOTES ON THE FOREIGN SNAILS OF LOUISIANA by H.W. Harry
   THE MOLLUSKS OF DAUPHIN COUNTY, PA. by R.A. Heilman
10. MEDEDELINGEN VAN HET BESTUUR - Correspondentieblad van de Nederlandse malacologische vereniging, 1951.
11. DIE MOLLUSKEN EINESTROPISCHEN FLUBTENISTES AUS TONKIN, Von Siegried Jaeckel, Arch. Mol. 1950.
12. UBER EINIGE NEOTROPISCHE LANDSCHNECKEN, Von Siegfried Jaeckel, Arch. Moll, 1950.
13. DIE PHARMAZIE - NACKTSCHNECKEN ALS DROGENSCHADLINGE Von Ewald Fromming, 1950.
14. " " FISCHE UND LURCHE ALS TESTOBJEKTE, 1950
15. DIE POSTEMBRYONALE ENTWICKLUNG EINER NACKTSCHNECKE, ZEITSCHRIFT FUR NATURFORSCHUNG von Ewald Fromming.
16. PHYSA ACUTA DRAP. IN BERLIN EINGEBURGERT, von Ewald Fromming, ARCHIV FUR HYDROBIOLOGIE, 1950.
17. UNTERSUCHUNGEN UBER DIE FARBVARIETATEN UND DIE ERNAHRUNG DER NACKTSCHNECKE ARION EMPIRICORUM, VON EWALD FROMMING, Arch. Moll, 1950.
18. UNTERSUCHUNGEN UBER DIE MENGENMABIGE NAHRUNGSAUFNAHME DER WEINBERGSCHNECKE HELIX POMATIA, Arch. Mol. 1950. Von Ewald Fromming.

NOTES AND NEWS ITEMS

A NOTICE TO THE MEMBERS AND AN INVITATION TO MEN AND WOMEN WHO ARE INTERESTED IN THE FASCINATING STUDY OF SHELLS - MARINE, LAND AND FRESH WATER. THE CONCHOLOGICAL CLUB OF SOUTHERN CALIFORNIA MEETS REGULARLY AT 7:30 P.M. ON THE FIRST TUESDAY OF EACH MONTH AT THE LOS ANGELES COUNTY MUSEUM, EDUCATIONAL DEPARTMENT - SOUTHEAST CORNER ON THE GROUND FLOOR. PRECEEDING THE MEETING AT 6:30 A POT LUCK DINNER IS SERVED, AND AT THAT TIME THE PEOPLE BECOME BETTER ACQUAINTED BY TELLING OF THEIR LATEST EXPEDITIONS.

MR. MORRIS CARUTHERS, THE PROGRAM CHAIRMAN IS BRINGING VERY INTERESTING SPEAKERS AND SUBJECTS BEFORE THE GROUP. THIS MONTH, MRS. FRED BARNETT IS PRESENTING A PAPER AND SHOWING KODACHROME SLIDS, AND DR. WENDALL GREGG WILL PRESENT A PAPER ON THE MOLLUSKS OF LOS ANGELES COUNTY. DURING THE YEAR MR. LEONARD BESSOM PLANS FIELD TRIPS THAT ARE INTERESTING, INSTRUCTIVE AND ENJOYABLE.

A LETTER DATED MARCH 27TH FROM MR. ALLYN SMITH STATES THAT THE 1951 AMERICAN MALOCOLOGICAL UNION, PACIFIC DIVISION, MEETING WILL BE HELD AT MILLS COLLEGE THIS YEAR. HE STATES "WE HOPE THE SELECTION OF MILLS COLLEGE AS A LOCATION FOR OUR MEETING IS IN GENERAL AGREEMENT WITH THE MEMBERS ALTHOUGH IT IS QUITE A WAYS FROM SOUTHERN CALIFORNIA." AS NOW PLANNED THE DATES FOR THE MEETING WILL BE FRIDAY, SATURDAY AND SUNDAY, JUNE 22ND, 23RD AND 24TH. WE FEEL SURE THIS WILL BE THE BEST MEETING WE HAVE EVER HAD.

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DR. WILLIS P. POPENCE, ASSOCIATE PROFESSOR OF GEOLOGY AT THE UNIVERSITY OF CALIFORNIA AT LOS ANGELES, HAS JUST RETURNED FROM A GEOLOGICAL RECONNAISSANCE TRIP TO AN AREA 300 MILES SOUTH OF THE CALIFORNIA BORDER IN LOWER CALIFORNIA. THE EXPEDITION WAS MOST INTERESTED IN FORMATIONS OF THE UPPER CRETACEOUS PERIOD--SOME 60 MILLION TO 90 MILLION YEARS AGO. ONE OF THE WORLD'S MOST REMARKABLE DEPOSITS OF GIANT AMMONITES--MARINE FOSSILS DISTANTLY RELATED TO OCTOPI AND SQUID--WAS VISITED BY THE UCLA PARTY AT ARROYO SANTA CATARINA.

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MOST OF THE EXPEDITIONS HAVE RETURNED FROM THEIR COLLECTING TRIPS IN MEXICO AND REPORTED AN EXCELLENT SEASON.

WE WERE INDEED SORRY TO HEAR THAT THE H. S. MCDONALD HOME WAS DESTROYED BY FIRE SINCE THEIR RETURN FROM THEIR TRIP TO MEXICO. MANY OF THEIR MOST VALUED POSSESSIONS WERE LOST IN THE FIRE INCLUDING THEIR SHELL COLLECTION, TROPHIES, BLADE AND SPEAR COLLECTION AND MANY OTHER THINGS.

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OUR SON THOMAS A. BURCH HAS NOW ARRIVED IN AFRICA WHERE HE IS TO BE THE DIRECTOR OF THE LIBERIAN INSTITUTE OF THE AMERICAN FOUNDATION OF TROPICAL MEDICINE, AND FROM RECENT LETTERS HE AND HIS FAMILY ARE BECOMING QUITE WELL ESTABLISHED IN THEIR NEW HOME AND SURROUNDINGS.

MRS. JOHN Q. BURCH, PRESIDENT
CONCHOLOGICAL CLUB OF SOUTHERN CALIFORNIA

MINUTES 109
APRIL & MAY 1951
CONCHOLOGICAL CLUB OF SOUTHERN CALIFORNIA

REMOVING THE ANIMALS FROM SHELLS

BY
TREVOR KINCAID

REMOVING THE ANIMALS FROM THEIR SHELLS IS ONE OF THE "BOTTLENECKS" OF THE CONCHOLOGIST, ESPECIALLY WHERE HE HAS TO DEAL WITH SMALL OR DELICATE SHELLS WHICH ARE EASILY BROKEN IN HANDLING. THE WRITER HAS RECENTLY COME ACROSS AN IDEA ALONG THIS LINE WHICH MIGHT BE HELPFUL, AND IT IS, THEREFORE, OFFERED FOR WHAT IT IS WORTH.

IN READING A PAPER BY DR. NEWELL OF THE UNIVERSITY OF HAWAII DEALING WITH THE CLASSIFICATION OF THE HALACARIDAE, A GROUP OF SMALL MITE-LIKE CREATURES INHABITING THE SEA, I FOUND THAT HE HAD ENCOUNTERED A SIMILAR PROBLEM IN ATTEMPTING TO REMOVE THE INTERNAL ORGANS FROM THESE SMALL AND DELICATE ORGANISMS WITHOUT INJURING THEIR EXTERNAL STRUCTURE. HE FINALLY HIT UPON THE IDEA OF "DIGESTING" THE ORGANIC MATTER WITHIN THE MITES BY USING TRYPSIN, WHICH IS ONE OF THE FERMENTS UTILIZED IN THE BODY OF MAN AND OTHER ANIMALS FOR LIQUEFYING FOOD MATERIALS IN THE DIGESTIVE TRACT. THE TECHNIQUE WHICH HE EMPLOYED IS A BIT TRICKY, BUT WITH A LITTLE PATIENCE IT LOOKS AS IF IT MIGHT BE IMITATED. HE MADE AN ARTIFICIAL PANCREATIC JUICE BY DISSOLVING 0.2 GRAM OF TRYPSIN POWDER IN 10.0 CC. OF 0.5% SODIUM CARBONATE. THIS SOLUTION IS THEN SET ASIDE FOR SEVERAL HOURS, BUT MUST BE PROTECTED FROM DISTURBANCE BY BEING KEPT IN A LARGER VESSEL CONTAINING ABSORBENT COTTON OR BLOTTING PAPER SOAKED IN TOLUENE. THE SOLUTION SHOULD THEN BE FILTERED SEVERAL TIMES, USING THE SAME FILTER PAPER. IF PROTECTED BY AN ATMOSPHERE OF TOLUENE THE SOLUTION WILL KEEP FOR A MONTH. LARGER QUANTITIES, WHICH WOULD OF COURSE BE MULTIPLES OF THE ABOVE, WOULD BE CALLED FOR WHERE LARGER ORGANISMS WERE INVOLVED. THE SMALL ANIMALS WERE PLACED IN THIS SOLUTION FOR PERIODS OF FROM ONE TO THREE DAYS AT A TEMPERATURE OF 40° C. WHEN THE BODILY CONTENTS HAVE BEEN ADEQUATELY DIGESTED THE SPECIMENS ARE THEN WASHED IN TAP WATER.

THIS SOUNDS RATHER COMPLICATED, BUT COULD PROBABLY BE REDUCED TO A ROUTINE. I NOTICE THAT THE SAME IDEA HAS RECENTLY BEEN APPLIED TO THE REMOVAL OF DEAD TISSUE IN WOUNDS WITH SEEMINGLY GREAT SUCCESS. THERE ARE PROBABLY OTHER LINES OF WORK IN WHICH IT MIGHT WELL FIND AN APPLICATION.

CORRECTION AS PER LETTER

MR. JOHN Q. BURCH
1584 W. VERNON AVENUE
LOS ANGELES 62, CALIFORNIA

DEAR MR. BURCH:

WHEN I WROTE TO YOU FROM LONDON, ENGLAND, LAST FALL, I STATED THAT I WAS FINDING IN THE BRITISH MUSEUM SPECIMENS OF SPHAERIUM TENUE NITIDUM CLESSIN FROM THE BRITISH ISLES. THIS WAS AN ERROR. THE SPECIMENS I WAS EXAMINING WERE A SMALL FORM OF S. CORNEUM (LINNE) WHICH RESEMBLE TENUE NITIDUM IN OUTLINE. A STATEMENT IN A PUBLICATION BY DR. NILS H. J. ODHNER LED ME TO PAY MORE CAREFUL ATTENTION TO CARDINALS AND, UPON ARRIVING HOME IN CANADA, I FOUND THAT THE BRITISH SPECIMENS LACKED THE STRIAE ON THE BEAKS WHICH ARE A DISTINGUISHING CHARACTER.

I WOULD BE GLAD IF YOU WOULD PUBLISH A STATEMENT IN THE MINUTES OF THE CONCHOLOGICAL CLUB CORRECTING THIS ERROR OF MINE.

SINCERELY YOURS,

REV. H. B. HERRINGTON

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COMMUNICATION FROM DR. A. MYRA KEEN

DO YOU REMEMBER THE MINUTE GASTROPOD PARATYPES I GAVE YOU ONE TIME WHEN YOU WERE HERE? I SAID AT THE TIME THAT DR. BARTSCH WOULD NAME THEM SOON. WELL, IT SEEMS HE DID, BUT AS HE SENT OUT NO REPRINTS OF HIS PAPER, I MISSED SEEING THE REFERENCE UNTIL BY MEREST CHANCE I RAN ACROSS IT THIS WEEK. I DO NOT REMEMBER THAT YOU HAVE MENTIONED IT IN THE MINUTES, AND SO I DOUBT IF YOU HAVE SEEN IT EITHER. HENCE, IT MIGHT BE YOU WILL WISH TO MENTION IT:

> "A REMARKABLE NEW GENUS AND SPECIES OF WEST AMERICAN MARINE MOLLUSKS" - JOUR. WASHINGTON ACADEMY OF SCIENCE, VOL. 28, NO. 8, PP. 281-282, 3 FIGS. IN TEXT, AUGUST 15, 1946. TYPE LOCALITY NORTH CORONADO I., MEXICO. THE NAME IS *CORONADOA SIMONSAE* BARTSCH

IT'S TOO BAD THIS REFERENCE DID NOT COME TO LIGHT IN TIME TO BE INCLUDED IN YOUR CHECK LIST.

I HEARD RECENTLY THAT TOM AND BEATRICE HAVE GONE TO WEST AFRICA. THAT WILL BE A FINE HUNTING GROUND IF THEY EVER GET TO THE SEA COAST, FOR IT IS AN AREA RARELY VISITED BY COLLECTORS. I WISH THEY COULD FIND SOME VERMETIDS THAT I COULD LOOK AT, FOR I HAVE YET TO SEE THE TYPE SPECIES OF *VERMETUS*, FROM SENEGAL. NEXT TIME YOU WRITE THEM, PLEASE SUGGEST MY NEEDS AND ALSO PLEASE CONGRATULATE BEATRICE ON THE FINE JOB SHE DID ON THE GASTROPOD GLOSSARY. I HAVE HEARD SEVERAL FAVORABLE COMMENTSON IT, AND MY STUDENT WHO IS WORKING ON A GASTROPOD KEY WAS DELIGHTED TO SEE IT.

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MR. R. R. TALMADGE FROM WILLOW CREEK (MENDOCINO COUNTY) CALIFORNIA WRITES AS FOLLOWS:

AT THE PRESENT TIME I AM UNABLE TO DO ANY WORK WITH THE DEEP WATER MARINES, OR AS A MATTER OF FACT ANY OF THE MARINES. WE DO HAVE SEVERAL FORMS OF LAND MOLLUSKA HERE AND OF COURSE FRESH WATER FORMS IN THE TRINITY.

I RAN INTO AN INTERESTING PROBLEM. SCATTERED THROUGHOUT THE HIGHER BEACHES ALONG THE RIVER, I FIND SINGLES OF THE *HELMINTHOGLYPTA ARROSA* WHICH ARE IDENTICAL WITH THE *MAILLIARDI* OF THE HUMBOLDT COAST. THE ONLY POSSIBLE EXPLANATION FOR THEIR PRESENCE SEEMS TO BE, THAT THE EGGS WERE BROUGHT IN ACCIDENTALLY FROM THE COAST ON VARIOUS SHIPMENTS.

MINUTES OF THE CONCHOLOGICAL CLUB OF SOUTHERN CALIFORNIA - FEBRUARY 1951

THE REGULAR MEETING OF THE CONCHOLOGICAL CLUB OF SOUTHERN CALIFORNIA WAS HELD AT THE COUNTY MUSUEM ON TUESDAY, FEBRUARY 6TH, 1951. AFTER A POTLUCK SUPPER, THE CLUB WAS CALLED TO ORDER AT 7:30 BY THE PRESIDENT, MRS. JOHN Q. BURCH. THE MINUTES OF THE JANUARY MEETING WERE READ AND APPROVED.

MRS. BURCH'S LETTER TO MR. J. H. BREASTED, DIRECTOR OF THE MUSEUM, AND HIS REPLY, WERE READ AND DISCUSSED. AS THERE SEEMED TO BE SOME FEELING THAT THE MUSEUM ASSOCIATION WHICH MR. BREASTED INVITED THE CLUB MEMBERS TO JOIN WAS PRIMARILY INTERESTED IN THE ART SECTIONS OF THE MUSEUM, MR. KANAKOFF INFORMED THE CLUB THAT A NUMBER OF THE MUSEUM'S SCIENTIFIC EXPEDITIONS HAVE BEEN FINANCED FROM THE ASSOCIATION FUNDS.

A NOTICE OF THE SHOW TO BE HELD BY THE ST. PETERSBURG, FLORIDA SHELL CLUB WAS READ AND INDIVIDUAL MEMBERS SPOKE OF SENDING EXHIBITS.

UNDER NOMENCLATURE DR. GREGG MENTIONED A PAPER ON "SUCCINEA" IN THE PUBLICATIONS OF THE MALACOLOGICAL SOCIETY OF LONDON BY DR. NILS ODHNER. OUR LOCAL SUCCINEA, WHICH HAS FOR SOME TIME BEEN CALLED QUICKIELLA REHDERI MUST NOW BE CALLED *CATINELLA REHDERI*.

FROM PART IX OF THE HERTLEIN AND STRONG REPORTS ON MOLLUSKS FROM THE WEST COAST OF MEXICO AND CENTRAL AMERICA - "SAXICOVA" ARCTICA BECOMES *HIATELLA ARCTICA* AND *CORBULA LUTEOLUS ALOIDIS LUTEOLUS*. *TAGELUS AFFINIS* GIVEN AS RANGING FROM PANAMA TO PERU COMES AS FAR NORTH AS NEWPORT BAY.

A LIVELY DISCUSSION FOLLOWED DWIGHT TAYLOR'S READING OF SOME INTERNATIONAL COMMISSION'S RULING ON PUBLICATION AS GIVEN IN THE JOURNAL OF PALEONTOLOGY.

COLLECTING REPORTS:

MR. & MRS. EDWARDS, MR. CHURCH AND GLEN RUSSELL HAD VISITED DOHENY BEACH AND FOUND *MARGINELLA* AND *MUREX TRIALATUS*.

MR. & MRS. HJORTH HAD COLLECTED AT DANA POINT AND SECURED BOTH *TRIALATUS* AND *MITRA IDAE*.

DR. GREGG AND DWIGHT TAYLOR HAD HAD A DESERT TRIP HIGHLIGHTED BY LIVE *TRYONIA* (WHICH IS *NOT* A *HYDROBIA*) AND TWO *FLUMINICOLAS* FROM MUDDY SPRINGS NEAR MOAPA, NEV.

THE MAIN TALK OF THE EVENING WAS GIVEN BY MR. JACK BAKER ON HIS EXPERIENCES COLLECTING SHELLS IN HAWAII--ILLUSTRATED WITH NUMEROUS AND BEAUTIFUL SPECIMENS. IT WAS VERY MUCH ENJOYED BY THE 24 MEMBERS AND GUESTS PRESENT.

MR. SCHICK ALSO DISPLAYED MANY FINE SPECIMENS COLLECTED IN HAWAII WHILE HE AND MRS. SCHICK WERE THERE, WHICH WERE ENJOYED BY ALL.

THE MEETING ADJOURNED AFTER THE USUAL MANNER.

ELSIE CHACE, SECRETARY

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MINUTES OF THE CONCHOLOGICAL CLUB OF SOUTHERN CALIFORNIA - MARCH 1951

THE MARCH MEETING OF THE CONCHOLOGICAL CLUB OF SOUTHERN CALIFORNIA WAS CALED TO ORDER AT THE REGULAR TIME - 7:30 P.M., MARCH 6, 1951, BY THE PRESIDENT, MRS. JOHN Q. BURCH.

MOVED AND CARRIED THAT THE CLUB ACCEPT THE MINUTES OF THE FEBRUARY MEETING AS PRINTED IN THE MINUTES NO. 107, AND DISPENSE WITH THEIR READING.

THE NOMENCLATURE COMMITTEE REPORTED NO NEW NAMES OF PARTICULAR INTEREST TO OUR GROUP, BUT A DISCUSSION OF THE SETTING-UP OF NEW GENERA IN A WOODRING AND BRAMLETTE PAPER ON THE ZOOLOGY AND PALEONTOLOGY OF THE SANTA MARIA CALIFORNIA DISTRICT WAS SPOKEN OF AS INTERESTING AND PROFITABLE READING. MR. BURCH ALSO MENTIONEDTWO PAPERS DEALING WITH THE PUGET SOUND OYSTER INDUSTRY; CONTRIBUTIONS TO THE

MINUTES OF THE CONCHOLOGICAL CLUB OF SOUTHERN CALIFORNIA - MARCH 1951 (CONTINUED FROM PAGE 3).

LIFE HISTORY OF THE JAPANESE OYSTER DRILL, TRITONALIA JAPONICA, WITH NOTES ON OTHER ENEMIES OF THE OLYMPIC OYSTER, OSTRAEA LURIDA, BY CHAPMAN AND BANNER, AND AN INVESTIGATION OF THE DECLINE OF THE NATIVE OYSTER INDUSTRY OF THE STATE OF WASHINGTON SENT OUT BY THE GIG HARBOR LABORATORY.

THE FORMAL PROGRAM OF THE EVENING WAS THEN TAKEN UP.

SOME NOTES ON THE STILL FLUID CLASSIFICATION OF THE TURRIDAE BY MRS. CHACE, FOLLOWED BY A BRIEF LECTURE ON GEOLOGIC AGES, THEIR NAMES, ORDER AND APPROXIMATE DURATION BY MR. KANAKOFF.

COLLECTING REPORTS WERE THE NEXT ORDER OF BUSINESS. MR. KANAKOFF REPORTED GLYPTOTOMA NEWBERRYANUM H. TRASKI COLIATA, AND H. TUDICULATA TUDICULATA FROM NEAR SAN DIEGO.

A GROUP TRIP OF TEN MEMBERS AT MALAGA COVE UNDER THE LEADERSHIP OF MRS. BURCH BROUGHT IN ABOUT 50 SPECIES, THE HIGHLIGHTS BEING MITRA IDAE MUREX TRIALATUS AND MEGATHURA CREMULATA.

DR. WM. LLOYD IS CONDUCTING A CLASS IN MARINE BIOLOGY FOR TEACHERS AND AT A RECENT SESSION A SMALL SEA ANEMONE PROCEEDED TO DIVIDE ITSELF--THE RESULT BEING TWO ADULT ANEMONES.

MEMBERS AND GUESTS WERE PRESENT. ADJOURNMENT WAS AFTER THE USUAL MANNER.

RESPECTFULLY SUBMITTED,

ELSIE M. CHACE, SECRETARY

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MINUTES OF THE CONCHOLOGICAL CLUB OF SOUTHERN CALIFORNIA - APRIL 1951

THE APRIL MEETING OF THE CONCHOLOGICAL CLUB OF SOUTHERN CALIFORNIA WAS CALLED TO ORDER AT THE REGULAR TIME AND PLACE BY THE PRESIDENT MRS. JOHN Q. BURCH. TWENTY-THREE MEMBERS AND GUESTS WERE PRESENT.

A LETTER FROM MR. ALLYN SMITH WAS READ NOTIFYING US OF FORMAL ARRANGEMENTS FOR THE PACIFIC DIVISION MEETING OF THE A.M.U. TO BE HELD AT MILLS COLLEGE, OAKLAND, JUNE 22-24, AND ASKING THAT THOSE INTENDING TO PRESENT PAPERS NOTIFY HIM.

ANOTHER LETTER FROM MR. MORRIS JACOBSON, PRESIDENT OF THE NEW YORK SHELL CLUB INVITED THE MEMBERS OF OUR CLUB TO MEET THEIR CLUB WHEN IN THE NEIGHBORHOOD, AND THANKING US FOR THE INVITATION TO ATTEND OUR MEETINGS, AND THE OFFER OF LOCAL COLLECTING INFORMATION.

THERE WAS NO REPORT ON NOMENCLATURE, BUT MR. BURCH ANNOUNCED A NEW BOOK (IN FRENCH) ON SHELLS OF WEST AFRICA BY NICKLES, ILLUSTRATED WITH ABOUT 1000 PICTURES.

THE FIRST PART OF THE PROGRAM WAS A DISPLAY OF SLIDES AND MATERIAL FROM CAPT. FRED BARNETT'S WORK ON THE CALIFORNIA FISH AND GAME BOAT, THE N.B. SCOFIELD, FOLLOWED BY SOME PICTURES TAKEN AT THE CLUB PICNIC IN THE BURCH BATH HOUSE AT REDONDO, JUNE 1939. THESE WERE PRESENTED BY MRS. BARNETT.

THE SECOND PAPER OF THE EVENING WAS GIVEN BY DR. W. O. GREGG, "A BRIEF DISCUSSION OF THE LAND AND FRESH-WATER MOLLUSCA OF LOS ANGELES COUNTY" WHICH INCLUDES 45 SPECIES OF LAND GASTROPODS, 1' FRESH WATER GASTROPODS, AND % FRESH WATER BIVALVES.

THE MEETING ADJOURNED IN THE USUAL MANNER.

RESPECTFULLY SUBMITTED,

ELSIE M. CHACE, SECRETARY

NEWS ITEMS

MISS LILIAN ZECH, 78, FOR THIRTY YEARS A RESIDENT OF 535 WEST HIGHLAND AVENUE, DIED RECENTLY. SHE HAS BEEN IN FAILING HEALTH FOR SOME TIME. MISS ZECH HAD LED A RETIRED LIFE FOR MANY YEARS IN REDLAND, HOWEVER, HAD FORMERLY LIVED IN LONG BEACH AND LOS ANGELES. SHE HAD NO RELATIVES IN THIS COUNTRY AND IT IS NOT SURE THAT SHE HAD ANY RELATIVES LEFT IN GERMANY.

THE ABOVE ITEM COPIED FROM THE REDLANDS DAILY FACTS FOR MARCH 9TH, 1951, IS OF PARTICULAR INTEREST TO THE MEMBERS OF THE CONCHOLOGICAL CLUB OF SOUTHERN CALIFORNIA AS MISS ZECH WAS THE LAST OF THE CHARTER MEMBERS OF THE CLUB. SHE AND HER MOTHER WERE LEADERS IN ITS ORGANIZATION AND SHE SERVED AS ITS SECRETARY FOR 16 YEARS.

WHILE MRS. ZECH WAS AN ACTIVE COLLECTOR AND TRAVELED WIDELY, I HAVE BEEN ABLE TO FIND ONLY ONE SHELL BEARING HER NAME - *HELMINTHOGLYPTA PETRICOLA* ZECHAE PILS. - A RESULT OF A SUMMER AT CAMP BALDY, CALIFORNIA.

ELSIE M. CHACE.

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THE SCRIPPS INSTITUTION OF OCEANOGRAPHY CELEBRATED THEIR 83RD CHARTER ANNIVERSARY OF THE UNIVERSITY OF CALIFORNIA BY DEDICATING THE THOMAS WAYLAND VAUGHAN AQUARIUM-MUSEUM ON MARCH 26TH, 1951. PRESIDENT R. G. SPROUL PRESIDED, AND DETLEY W. BRONK, PRESIDENT OF THE JOHNS HOPKINS UNIVERSITY AND NATIONAL ACADEMY OF SCIENCES GAVE THE ADDRESS.

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MUSSEL QUARANTINE

ANNUAL QUARANTINE, WHICH FORBIDS GATHERING OF MUSSELS FOR HUMAN CONSUMPTION GOES INTO EFFECT ALONG THE ENTIRE CALIFORNIA COASTLINE MAY 1, AND WILL EXTEND THROUGH OCT. 31.

THE QUARANTINE ORDER WILL BE ENFORCED BY THE STATE DEPARTMENT OF PUBLIC HEALTH AND LOCAL HEALTH DEPARTMENTS. EATING EVEN SMALL AMOUNTS OF MUSSEL FLESH DURING SUMMER MONTHS, WHEN THE SHELLFISH IS EXTREMELY POISON CAN BE FATAL.

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SHIP FUMIGATED

THE STEAMER IDAHO, JUST ARRIVED FROM GUAM, IS BEING FUMIGATED TODAY TO PROTECT OREGON FROM A POSSIBLE INVASION BY GIGANTIC AFRICAN SNAILS.

TWO OF THE SNAILS, WHICH FULL GROWN ARE ABOUT AS BIG ASBASEBALLS, WERE FOUND ON THE IDAHO. THE FUMIGATION IS MEANT TO SEE THAT NO RELATIVES OF THEIRS CAN GET ASHORE TO FEAST ON OREGON VEGETATION.

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SIERRA MADRE PUPILS BUILD MARINE EXHIBIT.

JOSEPH MOLTANE IS TO BE CONGRATULATED UPON THE WORK HE IS DOING IN TRAINING OF THE CHILDREN AT THE SIERRA MADRE ELEMENTARY SCHOOL WHERE ONE CLASS IS BUSY ON FINAL PREPARATIONS FOR A "TRAVELING" EXHIBIT OF MORE THAN 100 SPECIMENS. FEW SMALL SCHOOLS HAVE EVER BUILT UP A DISPLAY OF THIS SIZE, MOLTANE SAID, AND THE EXHIBIT WILL BE LOANED TO OTHER CLASSES. THEY HAVE QUITE A COLLECTION OF LIVE OCTOPUSES, CRABS OF ALL KINDS, GRASPING SEA PLANTS AND EVERYTHING THAT LIVES WITHIN A KID'S REACH OF THE OCEAN FLOOR.

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MEETINGS OF THE CONCHOLOGICAL CLUB OF SOUTHERN CALIFORNIA ARE HELD EVERY MONTH ON THE FIRST TUESDAY AT 7:30 P.M. AT THE LOS ANGELES COUNTY MUSEUM, EXPOSITION PARK, LOS ANGELES, CALIFORNIA. ALL INTERESTED PERSONS ARE CORDIALLY INVITED.

SUBSCRIPTION TO MINUTES - $2.50 PER YEAR.

NEW PUBLICATIONS RECEIVED

Catalog of the First Duplicate Series of the Reigen Collection of Mazatlan Shells in the State Museum at Albany, New York by Katherine Van Winkle Palmer New York State Museum Bulletin Number 342 January,1951 79 pages and one plate

The six page introduction is of great interest because the author gives much little known information about the Carpenter collections. This is a catalog of the first set of duplicates of the famous P.P. Carpenter Mazatlan collections. It is tied into Carpenter's 1857 Mazatlan Catalogue, a work with which we are all familiar but at the same time rather rare, or perhaps it is simply that the demand for it always seems to exceed the supply. To discuss this interesting list in detail would require not only many pages and hours but also involve a host of disputed species. It is needless to comment that all west coast students would be eager to visit this collection after reading this catalog.

I note no price on this valuable paper and do not know whether or not it is available as a separate publication from the New York State Museum but will write and try to get some copies for those interested. This is a genuine contribution to west coast conchology and certainly should find a place on every shelf.

Mesodon andrewsae normalis (Pils.) in Virginia by Paul R. Burch and Leslie Hubricht. The Virginia Journal of Science, Jan.,1951.
An interesting paper on the habits and habitat of this subspecies.

Geology and Paleontology of the Santa Maria District California By W.P. Woodring and M.N. Bramlette. Geological Survey Professional Paper 222. A large 4to work of 185 pages , 23 plates and 6 large full size maps in color.

This excellent work is of great value not only to the student of the fossil species, but also for those whose interests are entirely in the Recent, because both are discussed in detail. Certainly both will read the entire report with great interest. It is suggested that those interested order a copy at once from the Geological Survey or the Government Printer because these Professional Papers are notorious for going out of print and thereafter being almost impossible to obtain.

The authors cite the Minutes of the Conchological Club in several places and the species Saccella redondoensis (Burch) (described in Minutes No.33 p.9,1944 as Nuculana redondoensis Burch) is figured in the fossil on Plate 16 of this work. The fine distinctions between a number of our species are clearly stated. This paper should find its way into every library without delay.

Report of the United States National Museum 1950. This is largely a detailed report on the collections and recent acquisitions.

Revista De La Sociedad Malacologica " Carlos De La Torre" Vol.7, Num.3- Jan.,1951.

This issue maintains the high quality of the work in all former issues. The papers are : The Cuban Genus Jeanneretia by W.J. Clench and C.G. Aguayo; A new Color form of Liguus from Pinar del Rio, Cuba by W.J. Clench; Nuevos Moluscos Terrestres Cubanos, by Mario Sanchez Roig.

Boletin de Historia Natural De La Sociedad " Felipe Poey" Nos. 4 and 5. This excellent new periodical contains fine papers on many branches of natural science as well as occasional papers on mollusks. Issue #4 contains a paper " Dos Casos De Impresion De Las Partes Blandas En Ammonoideos De Vinales by Clemencia de la Torre.

The cover of Issue #5, March,1951 is a plate of fine Murex . Los Moluscos y La Civilizacion by C. Guillermo Aguayo is an exceedingly interesting paper. The many important uses of shells throughout historical time makes a very amazing account.

El Ostion Nuevos Datos Sobre Su Ciclo Vital by C. Guillermo Aguayo y I. Perez Farfante

Turtox News for March,1951 contains an excellent paper by Ralph W. Dexter on " Dredging in Shallow Sea Water".

Systematische Untersuchungen uber die Heliciden-Fauna von Madeira by G. Mandahl-Barth. An excellent large 4to paper of 93 pp,17 plates.

Danske landsnegle by G. Mandahl-Barth 15pp 7 Illust. This paper figures and discusses Carychium,Cochlicopa, and Vallonia.

The following papers by Karl Regius :
Vier kleine Mitteilungen uber den Untergrund der Stadt Magdeburg
Uber die Susswasserschneckel Lymnaeastagnalis bei Magdeburg
in 2 parts
Hydrobia stagnalis und Poromopyrgus cristallinus jenkinsi bei Magdeburg

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The University of Texas announces its Second Geography Field School in Latin America. The field course is restricted to male citizens of the United States or Mexico, who are at least juniors and preferably seniors and graduate students. The student must be a major in one of the specified fields(Anthropology, Botany,Economics, Geography,Geology,History,Sociology,Zoology)...

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AMERICAN MALACOLOGICAL UNION, PACIFIC DIVISION

AMERICAN MALACOLOGICAL UNION, PACIFIC DIVISION

The meeting will be held at Mills College, Oakland,California this year.

The dates will be June 22,23, and 24. Those expecting to attend may have room and board included at a flat rate of $5.00 per day at the Mills College dormitory if they wish. Of course, if they wish they may stay elsewhere in the city of Oakland etc.

Write either of the following:
Dr. Leo G. Hertlein, California Academy of Sciences,Golden Gate Park, San Francisco 18, Calif. or
Allyn G. Smith, 722 Santa Barbara Road, Berkeley 7, California

MINUTES 110
JUNE 1952
CONCHOLOGICAL CLUB OF SOUTHERN CALIFORNIA

SUBSCRIPTION $2.50 PER YEAR.

WE ARE NOW MEETING THE FIRST TUESDAY OF EVERY MONTH AT 7:30 P.M., AT THE LOS ANGELES COUNTY MUSEUM, EXPOSITION PARK, LOS ANGELES, CALIFORNIA. ALL INTERESTED PERSONS ARE CORDIALLY INVITED.

PLEASE MAIL ALL NEWS TO YOUR EDITOR:
JOHN Q. BURCH
1584 W. VERNON AVENUE
LOS ANGELES 62, CALIFORNIA
TELEPHONE- BUS. AX-3-5710
HOME PHONE AX-2-7965

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ROCHEFORTIA VS. MYSELLA

FROM A RECENT COMMUNICATION FROM DR. MYRA KEEN, WE QUOTE THE FOLLOWING:

"IN THE MINUTES, NO. 40, PAGE 14, WE NOTED THAT THERE WAS SOME QUESTION AS TO WHICH WAS THE PRIOR NAME ROCHEFORTIA OR MYSELLA. WE RETAINED ROCHEFORTIA PROVISIONALLY UNTIL THE MATTER COULD BE MORE THOROUGHLY INVESTIGATED. RECENTLY DR. KATHERINE VAN WINKLE PALMER, WORKING ON CARPENTER'S TYPES, HAS HAD OCCASION TO CHECK UPON THE EXACT DATES. SHE HAS GIVEN ME PERMISSION TO QUOTE HER TO THE EFFECT THAT THE DATE OF PUBLICATION OF MYSELLA ANGAS IS AUGUST 1, 1877, (PROC. ZOOL. SOC. LONDON FOR 1877, P. 176). THIS INFORMATION WAS GIVEN HER BY THE SECRETARY OF THE ZOOLOGICAL SOCEITY, AND IT CONFIRMS IREDALE'S STATEMENT (PROC. LINN. SOC. NEW SOUTH WALES, VOL. 49, 1924, P. 207) THAT MYSELLA HAS PRIORITY. ROCHEFORTIA VELAIN FIRST (COMPT. RENDUS ACAD. SCI. PARIS, VOL. 83, 1876, P. 285) WAS A NOMEN NUDUM. IT WAS VALIDLY PUBLISHED BY VELAIN IN THE ARCHIV. ZOOL. EXPER., VOL. 6, P. 132. THIS PAPER WAS READ APRIL 11, 1877, AND WAS NOT PASSED FOR PRINTING UNTIL NOV. 12, 1877. THE TITLE PAGE OF THE PRINTED VOLUME IS DATED 1878. HENCE, ROCHEFORTIA VELAIN MUST BE CONSIDERED TO DATE FROM LATE 1877 OR EARLY 1878, SEVERAL MONTHS AFTER MYSELLA ANGAS. THERE SEEMS NO QUESTION THAT THE TWO GENERA ARE FOUNDED ON SPECIES THAT ARE CONGERERIC. THE TYPE SPECIES OF MYSELLA (BY MONOTYPY) IS M. ANOMALA ANGAS, 1877."

RITES CONDUCTED FOR DOCTOR HEALTH IN PACIFIC GROVE

FUNERAL SERVICED WERE CONDUCTED FOR DR. HAROLD HEALTH, 83, INTERNATIONALLY KNOWN FORMER STANFORD ZOOLOGIST, IN PACIFIC GROVE. DOCTOR HEATH JOINED THE STANFORD STAFF IN 1894 AND SERVED THE UNIVERSITY CONTINUOUSLY UNTIL HE RETIRED IN 1933. HE WAS A PROFESSOR OF ZCOLOGY AT STANFORD UNTIL 1925 WHEN HE MOVED TO THE HOPKINS MARINE STATION, A STANFORD BRANCH IN PACIFIC GROVE. AFTER HIS RETIREMENT HE CONTINUED TO LIVE IN PACIFIC GROVE.

DR. HEALTH'S WORK TOOK HIM ON MANY SCIENTIFIC EXPEDITIONS, INCLUDING TRIPS TO JAPAN, ALASKA, BRAZIL AND THE PRIBILOF ISLANDS. HE VOLUNTEERED FOR SERVICE AS SCIENTIFIC DIRECTOR OF THE PACIFIC GROVE NATURAL HISTORY MUSEUM AND WAS MADE DIRECTOR EMERITUS IN 1946.

DR. HEALTH WAS A GRADUATE OF WESLEYAN UNIVERSITY OF OHIO AND TAUGHT THERE FOR TWO YEARS BEFORE COMING TO THE COLLEGE OF PACIFIC WHERE HE WAS ON THE FACULTY FOR A YEAR. HE RECEIVED HIS M.A. AND PH.D. FROM THE UNIVERSITY OF PENNSYLVANIA. HIS AFFILIATIONS INCLUDE THE AMERICAN SOCIETY OF ZOOLOGISTS, THE WESTERN SOCIETY OF NATURALISTS, PHI BETA KAPPA AND SIGMA CHI.

DR. HEALTH IS SURVIVED BY HIS WIFE, THE FORMER ELSIE SHELLY OF SAN JOSE; TWO SONS, RONALD W. HEALTH OF LONG BEACH AND JAMES P. HEALTH OF SAN JOSE; A DAUGHTER, MRS. PHYLLIS HEALTH WALKER OF BERKELEY AND A SISTER, MRS. MARY LEE OF FAIRHOPE, ALABAMA. THERE ARE ALSO SEVEN GRANDCHILDREN.

* * * * * * * * * * * *

NOTES ON COLLECTING IN KINGS CANYON

BY

E. P. CHACE

WAY BACK IN SEPTEMBER 1940, MR. A. G. SMITH DID SOME COLLECTING IN KINGS CANYON AND IN SEPTEMBER 1950, MRS. CHACE AND I COLLECTED IN THE SAME REGION. WITH MR. SMITH'S COOPERATION THIS REPORT COVERS BOTH TRIPS.

NONE OF THE LARGER SNAILS WERE FOUND IN THE VICINITY OF CEDAR GROVE CAMP. OF THE SMALLER THINGS WE COLLECTED:

DISCUS CRONKHITEI, (NEWC)
EUCONULUS FULVUS, ALASKENSIS, DALL
SUCCINEA CF AVARA. SAY
ZONITOIDES ARBOREUS, SAY
VITRINA ALASKANA, DALL
PISIDIUM (AT ONE LOCALITY ONLY)

WE COLLECTED ALONG SHEEP CREEK; AT ZUMWALT MEADOWS; ALONG ROARING RIVER A SHORT DISTANCE ABOVE ITS JUNCTION WITH THE MAIN RIVER. MR. SMITH WRITES THAT HE TOOK THE USUAL SMALL SPECIES FOUND AT THIS ALTITUDE IN OTHER LOCALITIES IN CENTRAL CALIFORNIA.

NOW COMES THE HIGH SPOT OF THE TRIP. ON THE WAY OUT WE STOPPED AT BOYDEN'S CAVE ABOUT 10 MILES DOWN THE RIVER FROM CEDAR GROVE CAMP GROUNDS. THE CAVE ENTRANCE IS WEKK FENCED OFF AND THE GATE KEPT LOCKED BY THE FOREST SERVICE DUE TO LACK OF FUNDS TO PROVIDE GUARDS AND GUIDES. BESIDE THE TRAIL UP TO THE CAVE ENTRANCE WE DUG INTO A POCKET OF LEAVES AMONG THE ROCKS AND FOUND:

1. FRAGMENTS OF A LARGE HELMINTHOGYPTA AND A LITTLE LATER A WHOLE SHELL, 2 BLEACHED BONES AND A FEW IMMATURE BONES. THIS PROVED TO BE H. FERRISSI, PILS, THE TYPE LOCALITY OF WHICH IS NEAR TEHIPITE DOME ON THE MIDDLE FORK OF THE KINGS RIVER AND ABOUT 20 MILES NORTH OF BOYDEN'S CAVE. MR. SMITH HAD FOUND SEVERAL OF THESE, INCLUDING AT LEAST ONE LIVE ONE, NEAR THIS SPOT BACK IN 1940, BUT WE HAD FORGOTTEN ABOUT THAT SO WE WERE QUITE THRILLED AT THE TIME.

2. 12 DEAD MONADENIA SHELLS, SOME MATURE AND SOME SMALL. THESE APPRENTLY BELONG TO THE HILLEBRANDI GROUP.

3. 6 SPECIMENS OF PRISTILOMA CF. GABRIELINUM (BERRY) ALL DEAD SHELLS. THIS IS A LONG DISTANCE FROM THE RANGE OF P. GABRIELINUM, THE SAN GABRIEL MTS. OF SOUTHERN CALIFORNIA, BUT AT PRESENT WE CAN SEE NO DIFFERENCES IN THE SHELLS. THIS WAS A DRY LOCALITY AND WE FOUND NO PYRAMIDULA OR EUCONULUS HERE.

UP AT GRANT GROVE LATE IN THE AFTERNOON, WE FOUND A FEW VITRINA ALASKANA, DALL IN THE LOWEST PART OF THE DRIED UP MEADOW AT THE EDGE OF THE VILLAGE. NEXT DAY, DOWN AT WHITAKER FOREST, I FOUND I HELMIN. TULARENSIS PLURIPUNCTA, BERRY. THIS IS, UP TO THE PRESENT WRITING, A RATHER RARE SPECIES, KNOWN ONLY FROM THIS LOCALITY.

THIS IS ALSO TYPE LOCALITY FOR H. NAPAEA BERRY AND 2 OR 3 OF THEM WERE FOUND ALONG WITH A FEW HAPLOTREMA ALAMEDA FIELDI, PILS. SO ENDS THE TALE.

* * * * * * * * * * * *

A LETTER FROM DR. PAUL BARTSCH TO ALLYN SMITH FROM WHICH WE QUOTE INFORMATION THAT YOU MAY BE INTERESTED.

"IN REPLY TO YOUR INQUIRY ABOUT THE STATUS OF THE WEST AMERICAN TURRIDAE, I MAY SAY THAT THE FIRST 2 SUBFAMILIES OF BOTH THE RECENT AND THE FOSSIL FORMS ARE COMPLETE. THE THIRD SUBFAMILY I AM NOW TACKLING. I HAD TO SET ALL THIS WORK ASIDE IN ORDER TO COMPLETE THE BIG MONOGRAPH BY DON CARLOS AND MYSELF ON THE CUBAN UROCOPTIDAE, WHICH IS IN THE HANDS OF THE EDITOR BEFORE DON CARLOS PASSED AWAY. I ALSO TURNED IN RECENTLY ANOTHER PAPER OF ALMOST 700 PAGES ON PHILIPPINE THINGS WHICH HAD BEEN HANGING FIRE FOR WANT OF TIME. NOW I SHALL CONCENTRATE ON THE TURRIDS AND I HOPE BEFORE LONG THAT IT MAY BE READY FOR THE PRINTERS."

* * * * * * * * * *

NEW PUBLICATIONS RECEIVED

The Nautilus, Vol. 64, No. 4, April,1951
There is but one paper in this issue touching the fauna of this coast. It is " A New Subspecies of Ammonitella" By E.P. Chace. The subspecies *Ammonitella yatesi allyni* is described from a location near Boyden's Cave, Kings Canyon, Fresno County, California
Other papers in this issue are: A New Caribbean Mollusk By H.A. Pilsbry and A.A. Olsson (Chione pinchoti); New Deep-Water Olivellas from Florida, with notes on the O. jaspidea-nivea complex By R. Tucker Abbott; New Marine Mollusks from British West Indies and Florida Keys By Jeanne S. Schwengel; New Species of Amnicola and Streptostyla By H.A. Pilsbry; A New Vexillum from Pliocene of St. St. Petersburg, Florida By William G. Fargo; Catalogue of Ancylidae of South and Central America and the West Indies, with Description of a New Species" By Charles B. Wurtz; European Ballast Shells in Staten Island,N.Y. By Mathilde P. Weingartner; Notes on Some Streptaxids By F. Haas; Arnold Edward Ortmann as Revealed By His Letters B Henry van der Schale; Helicella caperata (Montagu) in Yorktown,Virginia By John Thornton Wood.

The Lepyriidae, a New Family of Fresh-Water Snails (Gastropoda: Rissoacea) By Henry A. Pilsbry and Axel A. Olsson- Notulae Naturae No. 233, April 4,1951

Growth Changes in the Shell of Pythia Scarabaeus (Linne) By Harold W. Harry- Proceedings of the California Zoological Club. This is an interesting and well prepaped paper with numerous clear illustrations. It would be an excellent suggestion for Dr. Harry to give us similar information on the shell characters of other genera.
Calif. Zool. Club.,P.O. Box 461,Menlo Park,Calif. Sub. $3.00 year. is the address of this publication. This is Vol2,No.2 but our first opportunity to hear of it.

On the Clausiliidae of Palestine By Georg Haas. Fieldiana, Zoology Vol. 31, No.45, May 23,1951. 24 pages 8 plates. This is a very thorough paper and should be of great value to all interested in this genus.

* Note* This paper is by Dr. Georg Haas of the Hebrew University Jerusalem,Israel and should not be confused with Dr. Fritz Haas of the Chicago Natural History Museum.

The North European Helicella By Hans Schlesch, Journal of Conchology, Vol.23, No.5, March 1951. This is a distributional study and is illustrated with 6 marked maps.

A River Mussel Parasitic on a Salamander By Dr. Arthur D. Howard- Natural History Miscellanea, The Chicago Academy of Sciences. An interesting account of the salamander as host to glochidia. Five illustrations.

The Family Juliidae By Dr. Arthur Day Howard- The Nautilus,Jan. 1951. This paper has been mentioned before when it came out in the Nautilus but the excellent review of this little known family including species from this coast should be marked in all faunal lists.

Puget Sound Oyster Bulletin, Series X: No.1, May 24,1951. This is an interesting paper in this case by Dr. Vance Tartar. " A New Method for Predicting Proper Time for Cultching". This is a remarkable long range prediction based upon careful work over a period of years by Dr. Tartar. He concludes with " Predictions of Dates on which Cultch should be in the Water to Obtain Maximum Catches in 1951".

California Fish and Game, April,1951. There are no articles on mollusks in this issue but one must be somewhat impressed by looking over the reports of arrests,seizures etc. For example during Oct.,Nov. and Dec.,1950 for Abalone: 493 seizures,31 arrests and $910 fines imposed- Clams,Cockle: 3,371 seizures,14 arrests, $390 fines imposed- Clam,Horseneck .... This mentioned merely to advise a bit of caution while out collecting to be sure that you

Fisheries Newsletter, Australia, March,1951. Among other items of passing interest is Less Pearl Shell, More Trochus. Pearl and trochus shell valued at £ 622,850 was produced in Australia in 1950 compared with £ 601,375 worth in 1949. Approximately 70% .. was exported to the United States and earned over one million dollars for Australia."

* Note* Do not get the idea though that you are wearing buttons made from mother of pearl. Not at £ 700 per ton. With pearl shell worth approximately $1 per lb. in the rough, it can only be used for making fine pearl handled toilet sets etc, or at least that seems to be my impression. Anyway a good pair of specimen shells will weigh about 3 lbs. and be worth at least close to $3.00 just for the rough shell. A fine matched pair of specimen pearl shells is an item that should be properly prized.

Conchological Club of Southern California

We will meet in the usual place at the Los Angeles County Museum.

The pot luck dinner will be at 6@30 P.M.. Those wishing to join us may bring a dish of their own choosing. Batchelors or those who find it inconvenient to bring anything may come and be welcome paying 75¢ to cover the cost of the coffee etc.

The regular meeting will be called to order at 7:30 P.M.

The speakers of the evening will be:
Mrs. John Q. Burch- on the subject Conidae
and
Glen Russell- on the subject Poisonous Cones

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We have before us a copy of the Toledo Blade Pictorial for April 29,1951. The cover is in full color and all shells, a very attractive job. In the magazine is a very fine article on two large pages with many illustrations including photographs of the authors Mr. and Mrs. Alvin Bippus.

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JUNE 6,1951 6:15 P.M.

KFI TV " FISHING PALS" program by Mary and Charles Davis. John Q. Burch will be a guest on this program to tell about shells.
Those who have TV sets might find this an interesting half hour not only on this occasion but every Wednesday evening.

AMERICAN MALACOLOGICAL UNION
PACIFIC DIVISION

ANNOUNCEMENT - 4TH ANNUAL MEETING

MILLS COLLEGE, OAKLAND, CALIFORNIA
JUNE 22, 23, 24, 1951

RESERVATIONS: ARRANGEMENTS HAVE BEEN MADE FOR ROOM AND BOARD IN ETHEL MOORE HALL. RATES ARE $5.00 A DAY PER PERSON FOR BOTH ROOM AND BOARD. SINGLE OR DOUBLE ROOMS AVAILABLE. RATES FOR SEPARATE MEALS ARE 50¢ FOR BREAKFAST; $1.00 FOR LUNCH AND $1.50 FOR DINNER. MAKE RESERVATIONS AS SOON AS POSSIBLE BY WRITING MRS. HELEN R. DEMSEY, MILLS COLLEGE, OAKLAND 13, CALIFORNIA, OR TELEPHONE TRINITY 2-2700, GIVING THE FOLLOWING INFORMATION:

1. MENTION THE AMERICAN MALACOLOGICAL UNION FOR HER REFERENCE.
2. INCLUDE A DEPOSIT OF $5.00 PER PERSON.
3. MENTION TYPE OF ROOM DESIRED, HOW MANY IN ROOM, WHETHER MAN AND WIFE, ETC.
4. STATE EXPECTED TIME OF ARRIVAL AND DEPARTURE.
5. INDICATE WHEN FIRST AND LAST MEALS ARE DESIRED, AND PROBABLE TOTAL NUMBER OF MEALS; INDICATE NUMBER OF MEANS DESIRED IF NOT STAYING ON THE CAMPUS.

NOTE: MAY STAY IN DORMITORY OVER SUNDAY NIGHT AND FOR MONDAY MORNING BREAKFAST WITH ADVANCE NOTIFICATION.

REGISTRATION: FRIDAY, JUNE 22, 1:30 P.M. RALPH O. FOX IN CHARGE. REGISTRATION FEE 50¢.

PAPERS: MEMBERS WISHING TO PREPARE PAPERS, PLEASE SUBMIT THE FOLLOWING INFORMATION AND MAIL TO SECRETARY-TREASURER AS SOON AS POSSIBLE, AT ADDRESS BELOW:

1. TITLE.
2. MAXIMUM TIME FOR DELIVERY
3. TYPE OF PROJECTION EQUIPMENT DESIRED, IF ANY.

NOTE: MEMBERS ARE ALSO URGED TO SUBMIT PAPERS FOR PRESENTATION IF UNABLE TO ATTEND. ABSTRACTS OF ALL PAPERS SHOULD BE PREPARED IN ADVANCE AND MAILED WITH THE TITLE.

ANNUAL BANQUET: SATURDAY EVENING, FOLLOWED BY USUAL COLORED FILM ON MARINE LIFE TO BE PRESENTED BY DR. J. W. ROBERTSON OF LIVERMORE, CALIFORNIA. MRS. JOHN Q. BURCH IN CHARGE OF ARRANGEMENTS.

SHELL EXHIBITS: LABORATORY SPACE WILL BE AVAILABLE FOR MEMBERS WISHING TO PLACE EXHIBITS OF SHELLS ON DISPLAY. BRING A RARE SHELL OR A COLLECTION. BE SURE THESE ARE PROPERLY BOXED OR UNDER GLASS COVER FOR MAXIMUM PROTECTION.

LEO G. HERTLEIN, CHAIRMAN, PACIFIC DIVISION.
ALLYN G. SMITH, SECRETARY-TREASURER
722 SANTA BARBARA ROAD
BERKELEY 7, CALIFORNIA
TELEPHONE: LANDSCAPE 4-4975

THE FOLLOWING FORM IS FOR YOUR CONVENIENCE IN MAKING RESERVATIONS.

- -

NAME: ______________________________

ADDRESS ______________________________

NO. RESERVATIONS DESIRED ____________ TYPE ROOM DESIRED ____________ DBL. ____________ SGL.

TIME OF ARRIVAL ____________________ TIME OF DEPARTURE ____________________

NUMBER OF MEALS DESIRED ____________ FIRST MEAL ____________ LAST MEAL ____________

DEPOSIT ENCLOSED $5.00 __________

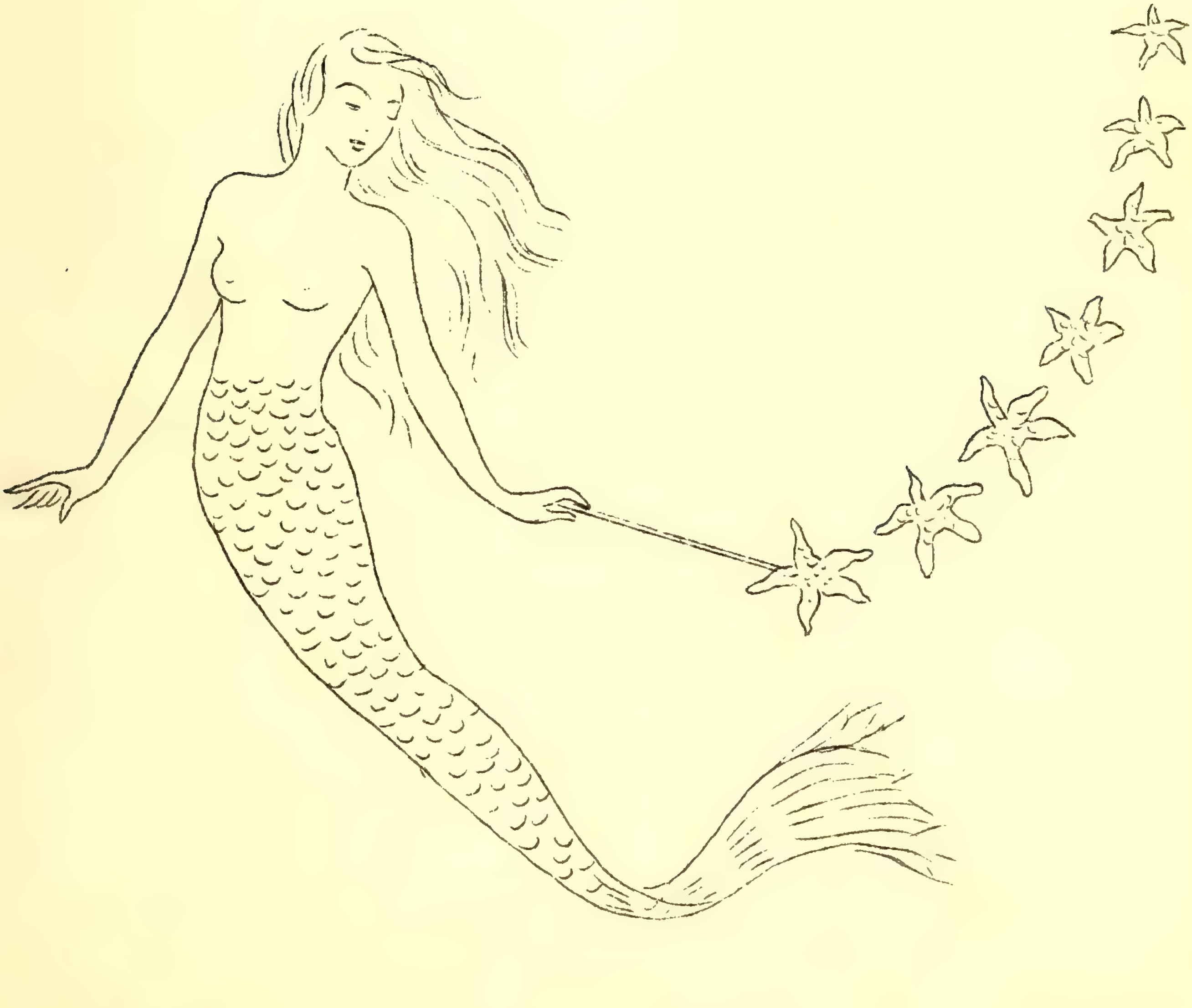
MAIL TO: MRS. HELEN R. DEMPSEY, MILLS COLLEGE, OAKLAND 13, CALIFORNIA.

RESERVATION FORM FOR AMERICAN MALACOLOGICAL UNION.
REMARKS:

MINUTES 111

Conchological Club Of Southern California

July 1951



Subscription $2.50 per year

We are now meeting the first Tuesday of every month at 7:30 P.M. at the Los Angeles County Museum, Los Angeles, California. All interested persons are cordially invited.

Please mail all news to your editor-

John Q. Burch,
1584 W. Vernon Ave.,
Los Angeles 62, Calif.
Telephone Ax 3-5710
Home Phone Ax 2-7965

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Some Publications Recently Received-

Natural History for March 1951 contains a very interesting and well illustrated aricle by Dr. R. Tucker Abbott of the U.S. National Museum " In Search of the Golden Cowrie". A number of other species are figured and discussed.

The June issue of the same publication carries another article by the same author " Operation Snailfolk". This is another well illustrated article on the giant African snail Achatina fulica and a discussion of the natural molluscan enemy of the giant snail, the African Gonaxis.

Basteria- Vol. 15, No. 1 and 2, May 1951. This is the publication of the society of the Netherlands. The following papers are included: G. Ranson: Les Huitres des bancs naturels sont seules susceptibiles d'assurer la perennite de l' espece.
Boettger,C.R. et Edm. Dartevelle: Mollusques de la breche de Hoix
WalrechtmJ.J.R.: Witte eiren van Sepia officinalis L.
Bloklander, A. et J. van Dalsum: Odostomia plicata (Montagu,1803), een nieuwe aanwinst voor onze fauna.
Beets,C.: On some genera of the family Turridae described from New Zealand
Verdcourt,B.: Radulae as an aid to the identification of the Zonitidae.
W.S.S. van Benthem Jutting: On a new Charopa from Celebes (Charopa (Discocharopa) microdiscus nov. spec.
-do- : On a new species of Opisthostoma from Celebes (Opisthostoma apast um nov. spec.
J.C. van der Meer Mohr: Merkwaardig gedrag van Parmarion pupillaris (Humbert)

Archiv fur Molluskenkunde: Band 80, No.1/3 April,1951 . The following papers are contained in this issue:
Kilian,E.F.: .... Pomatia elegans (Muller): Ankel,W.E.: Conus Gloria-maris, ein bisher unbekanntes Exemplar im Darmstrader Museum.
Kaltenbach,H.: Ergebnisse zoologisch-geologischer Sammelreisen in No.-Afrika 4. Rumina decollata
Zilch,A.: Ergebnisse zoologisch Sammelreisen H. Kaltenbach's in No. Afrika 5. Family Enidae--- Zewi neue Sculptaria-Arten aus S.W. Africa.
Klemm,W.: Okologische und biologische Beobacjtrungen an Schnecken besonders an Felsenschnecken.
Boettger,C.R. :... Potomopyrgus jenkensi E.A. Smith ...

AMERICAN MALACOLOGICAL UNION
PACIFIC DIVISION

4TH ANNUAL MEETING - MILLS COLLEGE, OAKLAND, CALIFORNIA
June 22, 23 and 24, 1951

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OFFICERS

Dr. Leo G. Hertlein, Chairman
California Academy of Sciences, San Francisco

Dr. Wendell O. Gregg, Vice Chairman
2200 South Harvard Blvd., Los Angeles 7, California

Allyn G. Smith, Secretary-Treasurer
California Academy of Sciences, San Francisco, California

Councillors-at-Large

Dr. A. Myra Keen, Stanford University, California
Miss Ruth E. Coats, Tillamook, Oregon
John Q. Burch, Editor, Conchological Club of Southern California
Dr. Joshua L. Baily, Jr., San Diego, California

PROGRAM

1:30 Registration of members and guests - Ralph O. Fox, Registration Chairman - Registration fee, 50¢ per person.

2:15 Call to order by Chairman Leo G. Hertlein.

2:30 Professor Josiah Keep of Mills College, Teacher and Conchologist - Allyn G. Smith, Research Associate, Calif. Academy of Sciences, San Francisco.

2:45 Collectors and Collections in Northern California - Dr. Leo G. Hertlein, Assoc. Curator of Paleontology, Calif. Acad. Sciences; Dr. A. Myra Keen, Curator of Mollusks, Dept. of Mineral Sciences, Stanford University; and Allyn G. Smith, Calif. Acad. Sciences.

3:45 Intermission.

4:00 The Parasites of Mollusks - Dr. Howard R. Hill, Curator, Los Angeles Museum, Los Angeles, California

4:30 Notes, Comments, and Experiences by members and guests.

6:00 Dinner - Mills Hall - If not staying in Ethel Moore Hall, members and guests should obtain meal tickets from Mr. Ralph Fox. (Note: Applies to all meals during the session.)

7:30 Hunting the Giant African Snail in Micronesia - An Illustrated Travelogue of Adventure - Albert R. Mead, Assoc. Professor of Zoology, University of Arizona.

Saturday, June 23

9:30 Business Session

10:30 Collecting in the Caves of California and Notes on the Sea Caves of the Channel Islands - Edward Danehy, Stanford Grotto, National Speleological Society.

11:00 Intermission.

11:15 Interesting Marine Mollusks of Morro Bay, California Ernest N. Wilcox, San Luis Obispo, California

12:00 Lunch - Mills Hall.

2:00 Classification of the Pelecypod Super Family VENERACEA Dr. A. Myra Keen, Stanford University.

2:30 The Significance of the Recent Invasion of Arizona by the European Brown Snail - Albert R. Mead, Assoc. Professor of Zoology, University of Arizona.

3:00 Intermission

3:15 Haliotis - John Q. Burch, Ed. Conchological Club of Southern California, Los Angeles.

3:30 Latex Mollusk Specimens for Museum Exhibits - Merton E. Hinshaw, Curator, Museum of Natural History, Pacific Grove, California.

4:00 Notes, Comments, and Experiences by members and guests.

6:30 Annual Banquet - Ethel Moore Hall.

8:00 Tide-Pool Life, A colored Motion Picture - John W. Robertson M.D., The Livermore Sanitarium, Livermore, California. Dr. Robertson is famous for his exquisite photography of marine life and this film was shown at the recent Scientific Congress in Paris

Sunday - June 24

10:00 Business Meeting - Report of Nominating Commieott and Election of Officers.

10:15

10:30 A Brief History of the American Malacological Union - Ralph Fox, Berkeley, California.

11:00 Open

12:00 Lunch - Mills Hall.

Members and guests registered at the Fourth Annual Meeting - Pacific Division - American Malacological Union - Mills College Oakland, California - June 22-23, 1951.

Mr. and Mrs. Robert R. Alexander, San Diego, California
Betty Babbitt, El Cerrito, California
Mr. and Mrs. John Q. Burch, Los Angeles, California
Helen A. Burton, Oakland, California
Mr. and Mrs. E. P. Chace, Lomita, California
Effie M. Clark, Castro Valley, California
Edward Danehy, Stanford, California
Frank P. Filice, Woodside, California
Mr. and Mrs. Howard L. Fletcher, Redlands, California
Ralph O. Fox, Berkeley, California
Dr. Wendell O. Gregg, Los Angeles, California
George Harrington, Palo Alto, California
Dr. Leo G. Hertlein, San Francisco, California
Dr. and Mrs. Howard R. Hill, Los Angeles, California
Merton E. Hinshaw, Pacific Grove
Dr. and Mrs. George A. Kanakoff, Los Angeles, California
Dr. Myra Keen, Stanford, California
Rosalind A. Keep, Oakland, California
Dr. Albert R. Mead, Tucson, Arizona
Lee O. Miles, Oakland, California
Mr. and Mrs. Louis B. Mousley, San Bernardino
Arthur C. Price, Hollywood, California
Mr. and Mrs. William Roth, Palo Alto, California
John G. Saxby, San Francisco, California
Allyn G. Smith, Berkeley, California
Andrew Sorensen, Pacific Grove, California
Mr. and Mrs. John P. Strohbeen, Santa Cruz, California
Sylvia G. Stuart, San Bernardino
Mrs. John K. Tompkins, Pasadena, California
Jay A. Weber, Miami, Florida
Mrs. A. T. Whelchel, Pacific Grove, California
Ruth Whitney, Los Gatos, California
Mr. and Mrs. Ernest N. Wilcox, San Luis Obispo, California
Jerry Zellers, El Cerrito, California
Lucille Zellers, El Cerrito, California

Total - 45

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We were all of pleased to have with us Mr. Andrew Sorenson. He is without a doubt personally responsible for the founding of our organization, and we were all happy to have him with us in good health and good spirits.

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Mr. and Mrs. Robert Alexander left from the meeting on an extnded vacation trip. They are not expected to return to their home in San Diego for several months.

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Mr. and Mrs. H.A. Edwards have a new home and are very happy in it. The new address is 5701 Buena Vista Terrace,Eagle Rock, Los Angeles 41, Calif.

OUTLINE OF A PROPOSED CLASSIFICATION OF THE PELECYPOD FAMILY CARDIIDAE

A. Myra Keen
Stanford University

The proposed classification here given in skeletal form will be published at more length, with illustrations of many genera, in the forthcoming "Treatise of Invertebrate Paleontology" which is being prepared by a number of collaborating paleontologists under the leadership of Dr. Raymond C. Moore, Editor. As the "Treatise" will probably not be published for some months, due to the magnitude of the project, the outline of classification of Cardiidae is here given with a two-fold purpose: first, to make available to persons wishing to describe new species a scheme of generic arrangement based upon a several-years' study of specimens and literature; and second, to invite criticism and suggestions from those who are interested in this group.

The list below covers all units recognized as valid, omitting homonyms, synonyms, etc. Subgenera are shown by indention; for example, under the genus Cardium fall the subgenera Cardium, s.s. and Bucardium. Only author and date are given here. Original references of names prior to 1936 may be found in Keen (1937); later ones are listed in the Zoological Record.

Family Cardiidae Broderip, 1840

Subfamily Cardiinae Stoliczka, 1870

Shell semicircular to quadrangular; ornamentation on crests of ribs or in intercostal spaces, not on sides of ribs; hinge long, nearly straight, cardinal teeth partially fused in right valve, left posterior cardinal elevated. Range in time, Lower Cretaceous to Recent.

- Cardium Linnaeus, 1758
  - Cardium, s.s.
  - Bucardium Gray, 1853
- Acanthocardia Gray, 1851
  - Acanthocardia, s.s.
  - Rudicardium Coen, 1915
  - *Schedocardia Stewart, 1930
  - *Agnocardia Stewart, 1930
  - *Incacardium Olsson, 1944
- *Granocardium Gabb, 1869
  - *Granocardium, s.s.
  - *Criocardium Conrad, 1870
  - *Ethmocardium White, 1880
- Vepricardium Iredale, 1929
  - Vepricardium, s.s.
  - *Orthocardium Tremlett, 1950
  - *Hedecardium Marwick, 1944
  - *Perucardia Olsson, 1944

Subfamily Trachycardiinae Stewart, 1930

Shell ovate, rib-ornamentation usually of spines or scales along posterior sides of ribs; hinge short, either nearly straight or sharply bent; cardinal teeth very unequal in size; posterior margin digitate. Range in time, Oligocene to Recent.

Trachycardium Morch, 1853
  Trachycardium, s.s.
  Dallocardia Stewart, 1930
  Mexicardia Stewart, 1930
  Phlogocardia Stewart, 1930

Acrosterigma Dall, 1900
  *Acrosterigma, s.s.
  Vasticardium Iredale, 1927
  Regozara Iredale, 1936
  *Ovicardium Marwick, 1944
Papyridea Swainson, 1840

Subfamily Fraginae Stewart, 1930

Posterior area of shell usually bounded by a ridge; ribs ornamented with threads or imbricating spines, intercostal spaces usually striate concentrically; hinge short, bent at an angle of more than 25°; posterior margin usually digitate. Range in time, Oligocene to Recent.

Fragum Roding, 1798
Hemicardia Spengler, 1799
  Hemicardia, s.s.
  Lunulicardia Gray, 1853
Corculum Roding, 1798

Ctenocardia H. and A. Adams, 1857
  Ctenocardia, s.s.
  Afrocardium Tomlin, 1931
Trigoniocardia Dall, 1900
  Trigoniocardia, s.s.
  Americardia Stewart, 1930

Subfamily Protocardiinae Keen,
New subfamily

Shell usually rounded quadrate, beaks nearly central; posterior slope well-defined by an umbonal ridge, usually with spinose ribs; hinge long, slightly arched, anterior left cardinal and posterior right cardinal much enlarged, peg-like, curved upward, sinuating the lower border of the hinge margin; pallial line sometimes with a small sinus near posterior adductor scar; margins of shell usually evenly crenulate, posterior margin usually with coarser crenulations than remainder of shell. Range in time, Upper Triassic to Recent.

*Protocardia Beyrich, 1845
  *Protocardia, s.s.
  *Tendagurium Dietrich, 1933
  *Pachycardium Conrad, 1869
  *Leptocardia Meek, 1876
  *Brevicardium Stephenson, 1941
*Jurassicardium Cossmann, 1906
*Integricardium. s.s.
  *Integricardium, s.s.
  *Onestia McLearn, 1933

Nemocardium Meek, 1876
  Nemocardium, s.s.
  *Discors Deshayes, 1858
  *Divaricardium Dollfus and
    and Dautzenberg, 1886
  Lyrocardium Meek, 1876
  Microcardium Thiele, 1934
  Lophocardium Fischer, 1887
  *Varicardium Marwick, 1944
  Pratulum Iredale, 1924

Subfamily Laevicardiinae Keen, 1936

Shell oblique-ovate in outline; rib ornamentation never of spines or imbricating scales; ribs of posterior slope weak to obsolescent; posterior margin never digitate; hinge usually long and arched, anterior left lateral bladelike. Range in time, Paleocene to Recent.

- Laevicardium Swainson, 1840
  - Laevicardium, s.s.
  - Fulvia Gray, 1853
  - Dinocardium Dall, 1900
- Serripes Gould, 1841
- Cerastoderma Poli, 1795
  - Cerastoderma, s.s.
  - Parvicardium Monterosato, 1884
- Clinocardium Keen, 1936
- *Loxocardium Cossmann, 1886
- Plagiocardium Cossmann, 1886
  - *Plagiocardium, s.s.
  - Maoricardium Marwick, 1944
  - Papillicardium Sacco, 1899

References

Keen, A. Myra. "Nomenclatural units of the Pelecypod Family Cardiidae," Bul. Musee Royal D'Histoire Naturelle de Belgique, Vol. 13, No. 7, March, 1937, 22 pp.

Zoological Record. Published in yearly volumes by the Zoological Society of London, Regent's Park, London.

VENERIDAE OF WESTERN NORTH AMERICA

Suggested generic assignment of species (Keen, 1951)	Assignment in U.S.N.M. Bull. 112 (Dall, 1921)
Sub family Venerinae	
Ventricola fordi (Yates).......	*Antigona fordi*
V. Isocardia (Verrill)(Gulf of Calif.)	
Subfamily sunettinae....(none)	
Subfamily Circinae	
Gouldia californica Dall (Gulf of Calif)	
Subfamily Meretricinae	
Tivela (*Pachydesma*) stultorum (Mawe)	
Transennella tantilla (Gould)	
Subfamily Pitarinae	
Pitar newcombiana (Gabb)...............	*Pitaria*
P. idae(Tegland)	
Amiantis callosa (Conrad)	
Saxidomus nuttalli Conrad	
S. giganteus Deshayes	
Subfamily Dosiniinae	
Dosinia ponderosa (Gray)	
Subfamily Gemminae	
Gemma gemma (Totten) (Introduced)	
Subfamily Cyclininae	
Cyclinella: *C. Kroyeri* and other species in the Panamic province	
Subfamily Clementiinae	
Compsomyax subdiaphana (Carpenter).....	*Marcia subdiaphana*
Subfamily Tapetinae	
Tapes semidecussata (Reeve) (Introduced)	
Liocyma: -- *becki*, *scammoni*, *viridis* Dall	
Psephidia:-- *lordi* (Barid), (*salmonea*) Cpr., *ovalis*, *cymata*, *brunnea* Dall	
Irus lamellifer (Conrad)...............	*Venerupis lamellifera*
Subfamily Chioninae	
Chione fluctifraga (Sowerby)	
Chione undatella (Sowerby)	
Chione californiensis (Broderip).......	*Chione succincta*
Marcenaria kennicotti (Dall)...........	*Venus kennicotti*
Protothaca tenerrima (Carpenter).......	*Paphia* (*Protothaca*)
Protothaca staminea (Conrad)...........	*Paphia* (*Protothaca*)
Protothaca grata (Say).................	*Paphia* (*Protothaca*)
Humilaria kennerleyi (Reeve)...........	*Marcia Kennerlyi*

THE AMERICAN MALACOLOGICAL UNION AND ITS CALIFORNIA MEMBERS

by

Ralph O. Fox

A common interest has brought us here today. An opportunity to talk with fellow collectors and others interested in mollusks, has led us to lay aside our daily tasks and to gather here.

Every organization large or small must be sparked into life by some individual. Our group is no exception, for during a winters sojourn in Florida, a noted naturalist of the State of Maine carried out a determined plan to organize the conchologists of the country.

This man was Norman W. Lermond, who besides having an extensive shell collection had fine collections of Maine birds, butterflies, beetles, plants, and rocks and minerals. His shell collection alone filled nearly 100 cases and numbered some 11,000 lots.

Lermond corresponded extensively with conchologists and compiled a list of 168 who stated they would become members of the club composed of American collectors and workers on mollusks.

The first meeting of the group was called for April 30th, 1931, at the Academy of Natural Sciences of Philadelphia, Penn., the announcement of the meeting read "Besides papers or talks by leading malacologists, already arranged, there will be opportunity for communications and discussions on any phase of shell study and collecting. Facilities will be given for exhibits, which it is hoped will be numerous. Bring along anything interesting you have collected."

Twenty-nine persons attended that first meeting, with 12 states represented, as far apart as Maine, California and Ala. It is interesting to note that two of those in attendance were women and one of these from our own bay region, Ida S. Oldroyd of Stanford, who gave a paper entitled "Shells that have Strayed Far from Home." Also in attendance was Herbert N. Lowe of Long Beach. At this meeting Dr. Henry A. Pilsbry was elected the first president and Mr. Lermond was chosen as secretary. An office he occupied for 13 years.

The second of the 1932 meeting was held at the United States National Museum in Washington, D.C., and to quote the report "was attended by about the same number, many of whom were present on the former occasion." California was represented by Joshua L. Baily, Jr., of San Diego, who read a paper entitled "The Founders of California Conchology."

By the third meeting, held at the Biological Institute at Harvard, in May of 1933, we see many Californians on the program and find the first published membership list. Of the 212 members,

35 were from California. Among those on the list we find Drs. Clark, Kofoid and Raymond of the University of California (all of whom have passed on). Stanford was represented by the late Mrs. Oldroyd and Drs. Schenck and Muller. With Dr. Hanna and Allyn G. Smith representing the California Academy of Sciences. Mackenzie Gordon and Junius Henderson also represented our State.

The California members having played an important part in the early meetings of the Union were proud to have the 1934 meeting held at Stanford. 32 members attended and 36 papers were read.

The Union has continued to grow and at its 1947 meeting the second one to be held on the West Coast, this time at Asilomar, on the Monterey Peninsula, we find 86 names on the register. 16 coming from east of the Mississippi River.

In the fall of 1947, Dr. Myra Keen of Stanford, the newly elected president, appointed John Q. Burch of Los Angeles chairman of a committee to explore possibilities for scheduling a meeting of the West Coast membership.

On April 10, 1948, 40 enthusiastic conchologists gathered in the auditorium of the Handcock Foundation at the University of Southern California in Los Angeles. The meeting was called to order by Dr. Keen, and Allyn G. Smith moved "That we organize a provisional Western Division of the American Malacological Union- subject to the approval of the parent organization." After a second and discussion it unanimously carried.

So came into being our Pacific Division which has continued to meet each year. In 1949 at Long Beach, in 1950 at Santa Barbara, and this gathering -- our fourth annual meeting.

The membership list as revised to January 1st, 1951, shows a total of 414 members, with 63 residing in California.

May our number continue to grow.

Ralph O. Fox
1048 Monterey Ave.
Berkeley 7, California

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Collecting in the Caves of California and Notes on the Sea Caves of the Channel Islands By Edward Danehy, Stanford Grotto, National Speleological Society

Speceologists- explorers and scientific investigators of caves and cavern life- have recently concentrated on a survey of California caves. A publication is being prepared as a Bulletin of the California Division of Mines. Besides the living insects, millepeds, spiders, and salamanders, some dead snails have been found. Although they are not true cavernicolous forms, a few very interesting specimens have been collected.

The sea caves of Anacapa and Santa Cruz Islands, investigated by the recent J.W, Sefton Foundation Channel Islands Sea Cave Expedition were illustrated and described.

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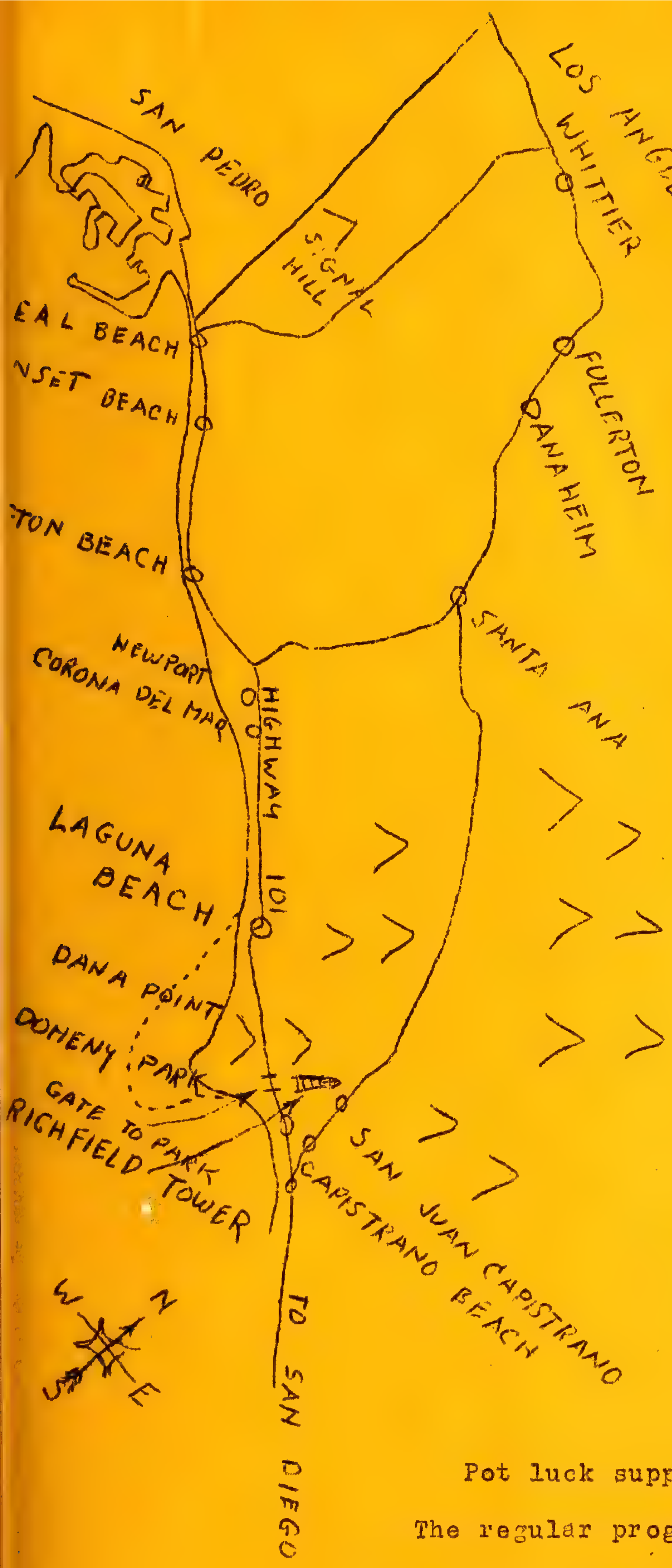
The above is a brief outline of a very interesting illustrated lecture given at the recent meeting at Mills College.

-1.0 TIDE 5:05 A.M.
SATURDAY JULY 21
AFTER LEAVING LAGUNA BEACH ON HIGHWAY 101
WATCH FOR RICHFIELD TOWER ON LEFT SIDE OF HIGHWAY.
ENTRANCE OF PARK IS ALMOST DIRECTLY OPPOSITE SIGN, AT BOTTOM
OF GRADE.


LOS ANGELES
SAN PEDRO
WHITTIER
SIGNAL HILL
EAL BEACH
NSET BEACH
FULLERTON
ANAHEIM
TON BEACH
SANTA ANA
NEWPORT
CORONA DEL MAR
HIGHWAY 101
LAGUNA BEACH
DANA POINT
DOHENY PARK
GATE TO PARK
RICHFIELD TOWER
SAN JUAN CAPISTRANO
CAPISTRANO BEACH
TO SAN DIEGO
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W

Pot luck supper following

The regular program meeting for August

to be held Sunday, August 5,1951 at 3 P.M. at

the home of the president, Mrs. John Q. Burch and John Q. Burch

4206 Halldale Ave.,Los Angeles 62, California. Phone Ax 2-7965

Office of the President
Mills College
Oakland 13, California

WELCOME TO MILLS COLLEGE! We hope your stay may be both pleasant and profitable.

Those who have not been here before may be interested to know that next year Mills College celebrates the one-hundredth anniversary of the founding of its ancestral institution in Benicia, California.

Mills College was the first nonsectarian women's college west of the Mississippi. Mills Hall, completed in 1871, has been used as a residence hall for eight decades. This year, students came from 33 states, 3 territories, the District of Columbia and 14 foreign countries. Through the Summer Session and the graduate school, Mills College attracts men and women from all over the world.

The Summer Session program of 1951 offers unusual advantages for both study and recreation. Music, art, ceramics, dance, La Maison Francaise, and many other special features are included. For fuller information, inquire at the Summer Session Office in the Administration Building (Room 23).

Mills College has much to offer to the young and the adult in fields of their special interests. Those of you who sense the unusual values, traditional and modern, implicit in the curriculum at Mills may want to interpret them to some promising student of college age. The Admissions Office will be pleased to give you specific information, answer questions, mail catalogues, and will appreciate recommendations of possible future students.

I know you will enjoy the friendliness of Mills College. If we may be of help during your stay on our campus, please feel free to call upon any of the officers of the college.

Sincerely yours,

Lynn White, Jr.
President

MINUTES 112
AUGUST 1951
CONCHOLOGICAL CLUB OF SOUTHERN CALIFORNIA

Subscription $2.50 per year

We are now meeting the first Tuesday of every month at 7:30 P.M. at the Los Angeles County Museum, Exposition Park, Los Angeles, Calif. All interested persons are cordially invited.

Please mail all news to your editor- John Q. Burch,
1584 W. Vernon Ave.,
Los Angeles 62, Calif.
Telephone Ax-3-5710
Home Phone Ax 2-7965

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A.M. Strong 1876-1951

The Conchological Club of Southern California has lost one of the greatest scholars to have honored its long existence in the death of Mr. A.M. Strong. There are few members who have not benefited from his expert and kindly advice.

Archibald McClure Strong was born June 18,1876, at Westminster, Calif., son of Robert and Villa Marquis Strong, and passed away at Balboa, Calif., July 14,1951. In 1888 the family moved to Pasadena where Mr. Strong graduated from Pasadena High School in 1895. He graduated from Leland Stanford University in 1899, and spent his early business life in the Owens Valley as a mining and civil engineer. Among his activities during these years were work as Inyo County surveyor, as chief enginect of the fabulous Cerro Gordo Mine, and an early survey of the Searles Lake potash deposits. In 1911 he moved his family to Los Angeles where he worked for many years as a consulting engineer before retiring to Balboa.

He had been interested in conchology for several years before joining the Conchological Club of Southern California which he did in 1920. He was elected its president in 1927 and filled that

office for several terms. By the time he retired from business Mr. Strong was widely recognized as one of the best auhorities on Pacific Coast shells and with more time he undertook the classification of the shells collected by several scientific expeditions to the west coast of Central and South America and alone or in collaboration with one or more of his associates, he published a number of valuable papers on conchology.

Othe organizations to which he belonged were the American Institute of Mining and Matellurgical Engineers, California Academy of Sciences, American Malacological Union, San Diego Society of Natural History, the Scottish Rite bodies of Pasadena and the Newport Harbor Yacht Club.

He is survived by a brother, Robert M. Strong of Pasadena, a daughter, Mrs. Marian Strong Clark and three grandchildren, Lincoln, Carrolle and Anthony Clark of Balboa, to whom the Conchological Club extends its sincere sympathy.

Some of the more important of Mr. Strong's conchological publications are:

1. Key to the principal genera of microscopic gastropods of the West Coast of North America.
2. West American Mollusca of the genus Phasianella 1938
3. New species of West American shells 1938
4. Marine Mollusca of San Martin Island, Mexico 1937
5. Notes on some species of Epitionium, subgenus Nitidiscala, from the West Coast of North America. 1930

G.D. Hanna and A.M. Strong
Marine Mollusca of Guadalupe Island, Mexico 1930
Marine Mollusca of the Revillagigedo Islands, Mexico 1930
Marine Mollusca of the Tres Marias Islands, Mexico 1930
West American Mollusks of the Genus Conus 1949
A.M. Strong and Leo George Hertlein
New species of Recent Mollusks from the coast of Western North America 1937
Marine Pleistocene mollusks from the Galapagos Islands 1939
Mollusks from the west coast of Mexico and Central America Published in 9 parts 1940-1950
Fred Baker, G. Dallas Hanna and A.M. Strong
Some Pyramidellidae from the Gulf of California 1928
Some Rissoid Mollusca from the Gulf of California 1930
Some Mollusca of the Family Epitoniidae from the Gulf of California
Some Mollusca of the families Cerithiopsidae, Cerithiidae, and Cyclostrematidae from the Gulf of California and adjacent waters 1938.
Columbellidae from Western Mexico 1938

The above is by no means a complete list of the work of Mr. Strong nor does it list his multitudinous contributions to the Minutes of the Conchological Club of Southern California.

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We regret to announce the death of Harold R. Robertson of Buffalo, New York, for many years well known as an officer of the American Malacological Union. We expect to publish more of the record of his work soon.

INTERESTING MARINE MOLLUSKS OF MORRO BAY

Very early on a June morning in 1936, Mr. and Mrs. John Q. Burch, their son Tom and Mrs. Effie Clark went on a collecting trip to Morro Bay with Mrs. Wilcox and me. We arrived at Morro Rock about daylight and in the wet sand left bare by the outgoing tide we found live specimens of Olivella pycna Berry, a recently described species. The razor clam, Siliqua patula nuttallii, occurs in considerable numbers along the sandy beaches at Morro Rock but we were unable to find any live ones.

Leaving Mrs. Clark and Mrs. Wilcox at Morro Rock the rest of us set off to explore the sand bars and mud flats which the outgoing tide had left exposed farther down the Bay. Here John collected his first live specimen of Cardium corbis. There were large and beautiful ivory white specimens of Olivella biplicata, big specimens of Polinices lewisii and the more rare Polinices alta. Soon John stopped to examine a stranded "sea hare" and after a little manipulation removed from its mantle the horny leaf-like shell plate. John's hands were stained a rich purple by the ink sack of the protesting Tethys but he insisted that it would go on living quite happily without its shell plate. Another find was live specimens of the rather rare venerupis tenerrima, but the real thrill came when Tom reached down and made a quick grab, at the same time imploring his father to dig hard. The wet sand ran in almost as fast as it was removed and after ten minutes Tom said he could not hang on much longer so we tied a stout cord to the end of the siphon and each took turns in digging.

After more than half an hour's work, hard work at that, we had a great hole like a water well and the mollusk loosened its hold and came out. It was my first view of that great northern clam, Panope generosa, the Geoduck. I believe John still has that specimen though some eastern college, Amherst I think, tried hard to get it away. The Geoduck has the appearance of being too big for its clothes for its body bulges outside the shell on three sides and the great siphon cannot be withdrawn inside the shell at all.

Later that day I visited Lee Osborn, one of the partners in the Morro Bay Oyster Company, and he showed me his shell collection. I was surprised when he produced a fine specimen of Forreria belcheri and said that he and Dr. US.Grant of the University of California at Los Angeles had collected four live specimens in Morro Bay. Another surprise was fine specimens of Murex festivus which he said was a great pest in the oyster beds and that the owners had to go out and gather up the Murex every few days to keep them in check.

Another very happy collecting trip was in February, 1939, when I spent two days and nights at Morro Bay with Andrew Sorensen. We stayed at the Star Auto Court and I can testify that Andrew is a very brave soul, for he ate the things that I cooked and is still surviving twelve years afterwards. We also hunted Geoducks and I think dug out five live ones after much labor.

My friend, Lee Osborn, took us down the Bay in his motor boat and while he and Andrew visited the oyster beds I searched the eel grass covered mud flats with interesting results. Two live specimens of Calliostoma canaliculatum that usually lives on the great kelps, two live Callistoma costatum that are usually found in rocky places two live Murex festivus, and one specimen each of the jack knife clam, Tagelus californianus, and the beautiful purple clam, Sanguinolaria nuttallii.

One October day at low tide I walked down the sand flats at Morro Bay with Mr. and Mrs. Emery P. Chace and collected live specimens of Tellina bodegensis. They were lying on the surface of the sand in shallow water, the only live ones I have ever found. It would seem to be their breeding season. The same day and place I found twenty six live specimens of Tellina buttoni in a patch of wet sand the size of one's hand.

There are several marine mollusks which occur so rarely at Morrow Bay that to find one is a notable event. An example is Bulla gouldiana which a friend of mine found alive at low tide on the mud flats at Baywood Park. Another is Mitra montereyi which has been found three times, but not recently I think. This specimen, a dead shell I found fifteen years ago.

Chione fluctifraga, Donax gouldii, and the frog shell, Bursa californica, are all found near Morro Rock at times but I have not found live ones. This young specimen of Astraea inaqualis I found alive at Morro Rock, and it occurs on rocky shores six miles or more farther south. Tellina idae I am listing on the authority of Morris Caruthers who reports collecting it at Morro Bay in 19 . I have not known of its being found there since.

From the examples cited it would seem that Morro Bay is to a remarkable degree, a meeting place for molluskan species from both North and South. Many of them are of interest because they would not be expected to live there, while others are interesting in their own right.

Northern Species

Panope generosa Gould
Tellina bodegensis Hinds
Cardium corbis Martyn
Siliqua patula nuttallii Conrad
Venerupis tenerrima Carpenter
Mitra monteryi Berry
Astraea inaequalis Martyn

Southern Species

Forreria belcheria Hinds
Bursa californica Hinds
Murex festivus Hinds
Bulla gouldiana Pilsbry
Sanguinolaria nuttallii Conrad
Tagelus californianus Conrad
Tellina idae Dall

From my limited observation the following species are no longer found in Morro Bay: Forreria belcheri, and Mitra montereyi and Tellina idae.

Ernest N. Wilcox

* * * * * * * * * * * *

LATEX MOLLUSK SPECIMENS FOR MUSEUM EXHIBITS

Malacologists and conchologists usually show more than average interest in many museum exhibits. I should like to take you behind the scenes and describe a method of making the soft parts of mollusks to be combined with the shells to create habitat groups.

The development and fundamental principles of a special latex molding compound was expressed in several issues of the Museum News, official publication of the American Association of Museums. Based on the principles laid down by von Fuhrman in the East and Rhett of Santa Barbara, the last publication was a description of this writer's new application of the technique to produce seaweeds.

The general idea is to make a plaster mold of the whole animal; sometimes of the animal without its shell. Using a technique common in ceramic work, the mold is filled with the latex compound which is thinned to a gravy consistency. That "gravy" nearest the plaster loses much of its moister to the plaster and sets, the excess, the bulk remaining liquid in the center is poured off to be saved and used again. When the cast in the mold has vulcanized at room temperature in about 24 hours it is powdered with talc and removed. Following a brushing to remove any plaster particles adhering, shellac is sprayed on to protect the rubber from the oil paints which are next applied. A living animal should be used as a color guide. Another shellac coating follows on the dried oils.

If the piece is to be placed in or on the original shell, this can now be done.

To-date we have thus done nudibranchs, abalone, and giant keyhole limpets.

Merton E. Hinshaw, Curator
Museum of Natural History
Pacific Grove, California

MINUTES - MAY MEETING, 1951

The May meeting of the Conchological Club of Southern California was called to order Tuesday, May 1st, by the President, Mrs. John Burch. Twenty-five members and guests were present. The minutes of the April meeting were read and approved.

A notice was read of the death of Miss Lillian Zeck, charter member and first secretary of the club. Other items brought up were the illness of Mr. A. M. Strong and a long trip being made by Mr. & Mrs. Robert Alexander. Mrs. Burch brought in a notice of a meeting to organize a group to coordinate the scientific organizations of Los Angeles on May 28th--no action taken by the club.

An exhibit of paintings by H.A. Edwards at the Southwest Museum was called to the notice of the club.

Dr. Gregg gave the report of the Nomenclature and literature committee -- three papers by Mr. Glenn Webb, and Dr. Katherine Palmer's Catalog of Carpenter's duplicates from the Reigen collection.

A motion was made by Dr. Gregg and seconded by Dr. Howard that the Board of Supervisors be requested to choose as the next director of the Museum some one of recognized scientific ability-- motion carried.

The first speaker on the evening's program was Mr. Frank Hoover, who gave a clear report on our local Nassarius and followed with a preliminary account of a recent trip to San Felipe making several members anxious to follow his example.

Mr. E. P. Chace then discussed the use of Keys in classifying Mollusca with particular reference to Acmaea which helped to clarify a very puzzling group.

Adjournment was after the usual manner.

Respectfully submitted,

Elsie M. Chace, Secretary

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MINUTES - June 5th, 1951

The June meeting of the Conchological Club of Southern California was called to order the usual time and place by the President, Mrs. John Q. Burch. The reading of the minutes of the May meeting was dispensed with, and the secretary informed the club of the acknowledgement of the action taken by the club in regard to the selection by the proper body of a new director for the Los Angeles County Museum. President Burch had a special announcement of the meeting of the A.M.U. P. to be held at Mills College Oakland, June 22-24, 1951.

June Minutes continued.

Under "Nomenclature and Literature" Dr. Gregg called attention to an article in the April Nautilus describing a new Chione from near Colon, Panama, and Dr. Hill announced a paper in the Proc. of the California Academy of Science by P. Korringa on "The Nature and Function of Chalky Deposits in the Shell of Ostraea edulis, Linn." Much interest was shown in a nautilus shell from below Cape San Lucas, probably undescribed and brought in by Mrs. John Q. Burch.

The topic for the evening was Conidae. Mr. Glen Russell discussed "The Poisonous Cones" - five species known to be poisonous, and one - striatus under suspicion.

Mrs. Burch then spoke on Cones in general calling attention to the fact that there are twenty-nine species from the West Coast of Mexico and Central America and onehundred sixty-eight from the Philippine Islands. Several handsome specimens were shown.

During the informal discussion Mr. Gerald Gaines expressed a desire to become a member of the club. As he is sponsored by Mr. & Mrs. Burch, the secretary-treasurer accepted his dues and unless formal objection is received by the secretary he will be accepted as a member.

Seventeen members and guests were present at the meeting which adjourned in the usual manner.

Respectfully submitted,

Elsie M. Chace, Secretary

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MINUTES - JULY MEETING, 1951

July 3rd, 1951, the Conchological Club of Southern Calif., met as usual in the Los Angeles County Musuem. Following our regular "pot-luck" supper the meeting was called to order by the President, Mrs. John Q. Burch. The minutes of the June meeting were read and approved. A special guest, Dr. Bernard Peyer of theUniv. of Zurich, Switzerland was introduced.

A field trip was planned for an early morning tide, July 21st at Doheny Park. It was decided to make our August meeting the traditional picnic at the Burch home on Sunday August 5th--program in the afternoon followed by a cover dish supper.

Dr. Gregg read a letter from our member, Dwight Taylor, vacationing in Honolulu, which was intended to carry greetings to the A.M.U.P., was unfortunately delayed. After brief reports on the high lights of the A.M.U.P. meeting at Mills College June 22-24, Mr. Kanakoff gave an excellent discussion of the sub-family Venerinae, which he illustrated with numerous specimens.

Twenty-eight members & guests attended the meeting and Miss Frances Cramer and Mr. Merle Nelson, both of L.A., expressed their desire to become members & paid dues to treasurer. Meeting Adjourned.
Respectfully submitted, Elsie Chace, Secretary.

PUBLICATIONS RECENTLY RECEIVED

Carlos De La Torre- Su Vida y Su Obra by Jose Alvarez Conde
A biography of the foremost Cuban naturalist by one of his devoted students - 240 pages- 65 plates $3.00
Orders for this book may be sent to John Q. Burch

Discovery Reports Vol. XXVI, pp 47-196, plates V-X issued by the National Institute of Oceanography-
Antarctic and Subantarctic Mollusca: Pelecypoda and Gastropoda by A.W.B. Powell. Cambridge University Press, 1951.
This work is done in the large folio and the plates are so remarkably clear that they should be used as a lesson example by most of those publishing figures of mollusks.
This work carries the price thirty shillings. However, those interested in receiving a copy may have it by return mail from John Q. Burch for $6.00.

Notes on Crepidula fornicata's further invasion of Europe
by Ivar Hessland Arkiv For Zoologi, Stockholm,1951-In English
Calcareous freshwater sediments from northern Bohusland- by
Ivar Hessland- Arkiv For Mineralogi Och Geologi- Stockholm,1949
pp 103-167- quadruple plates 1-4
A Quaternary diatom spectrum from Bohuslan- same as above-1949
Note on Balanus hammeri(Ascanius) as Hydrological Indicator
with a diatom analysis by Astrid Cleve-Euler

Marine Shell Collecting on the North Coast of New South Wales by Gertrude Thornley and
A New Species of Volute Shell (Volutidae) from Deep Water off Broughton Island, New South Wales. -- Desc. of Ericusa sericata sp. nov. from the Proceedings of the Royal Zoological Society of New South Wales.
And Limpets of New South Wales from the same publication,1945, and obviously a very handy paper to have if working with the Australian limpets having two plates showing many species.

A New South Australian Shell by W.G. Buick and W.M. Bowden.
From the South Australian Naturalist vol.26,No.1, May,1951
The species is Ephippodonta turnbullae sp nov. From the figures it is obvious that I have no such shell in my personal collection and would like to see a specimen.

Land Snails of West Virginia by Gordon K. MacMillan. pp 89-238, 15 plates. Annals Carnegie Museum Feb.28,1949.
A very scholarly coverage of the land snails of this region with very clear plates.

Remarks on and Descriptions of South American Non-Marine Shells by Fritz Haas - Fieldiana-Zoology, Chicago Museum of Natural History- July 6,1951 pp 503-545 Text figs 97-126.
An excellent and well illustrated paper as might be expected from Dr. Haas , but this is one of special credit to even so careful an author.

On the Clausiliidae of Palestine by Georg Haas, Fieldiana-Zoology Chicago Natural History Museum, May 23,1951. This is a very fine paper , well illustrated. Dr. Georg Haas is of the Dept. of Zoology,Hebrew University,Jerusalem, Israel.

Glossary of the Greek and Latin Names of Marine Mollusca occuring on the East Coast of North America by Henry Poirier.

There has been a need for such a work as this and this is really excellent. The author seems to have taken the Johnson check list and followed it throughout giving the meanings of all of the names. It should certainly find a place in every conchological library. I personally recommend it to my friends.

It is for sale exclusively now by Roger Bretet, Apt. L1, 116 Pinehurst Ave., New York 33, N.Y.. The price is $1.60.

On the nature a nd finction of " chalky" deposits in the shell of Ostrea edulis Linne by P. Korringa. Proceedings of the Calif Acade. of Sciences, Vol. XXVII, No.5, pp 138-158, 2 text figs, May 31,1951.

Memorias de la Sociedad Cubana De Historia Natural- Universidad De La Habana- Vol. XX, Num.2, Junio,1951. This excellent journal contains many fine and well illustrated papers on entomology and other groups but often carries excellent papers on Mollusca. This issue contains " Novedades en el genero Caracolus en Cuba por W.J. Clench y C.G. Aguayo". Descriptions of five species of Caracolus with one very good plate.

Some Mollusca Collected in the Vicinity of Kanab,Kane County,Utah by Ernest J. Roscoe. Abstract of papers presented before the Utah Academy of Sciences. Also " Some observations on reproduction in Oreohelix in Utah" and " Radix auricularia (L.) in Utah"

Papers on Mollusca by R.K. Dell, Dominion Museum Records in Zo logy, Wellington, New Zealand. " Notes on the Taxonomy and Distribution of some New Zealand Mollusca with Description of Four New Species" -- " A Tertiary Molluscan Fauna from Waikowhai, Manukau Harbour,Auckland", --" The Molluscan Genus Venustas in New Zealand Waters"-- " Two New Species of Land Shells from the Snares Islands". These articles are illustrated with remarkably fine and clear photographic illustrations.

" Conus Gloria-maris, ein bisher unbekanntes Exemplar im Darmstadter Museum" by W.E. Angel. Arch, Moll. 1951. An excellent plate illustrating this rare cone. It would be interesting to know just how many specimens of this are in existence.

" Okologische und biologische Beobachtungen an Schnecken,besonders an Felsenschnecken" by Walter Klemm. Arch, Moll. 1951

" Untersuchungen zur Biologie von Pomatias elegans (Muller) und ihrer " Konkrementdruse" by Ernst F. Kilian

" Ein kostbarer Fund im Landesmuseum" Zugleich ein Kapitel Museumsgeschichte" by Dr. W.E. Ankel. Another paper on the Conus gloria maris.

" Cheapening the Widow's Mite" is the title of a short article illustrating Cypraea moneta appearing in Eugenics Pamphlets No.71.

Boletin de Historia Natural De La Sociedad " Felipe Poey",Univ. De La Habana, Cuba. Vol.2,No.6, Mayo,1951. This issue contains a lengthy article entitled " Lamparas Animadas" by G. Guillermo Aguayo. The interesting subject of luminescent animals of many groups is illustrated including such as Pholas dactylus.

" California Fish and Game" Vol.37, No.3, July,1951 contains " Results of the Pismo Clam Censuses 1948,1849 and 1950" and records of arrests etc.

Pacific Discovery- Vol. IV, No.4 of the Calif. Acad, of Sciences contains an very fine article and beautifully illustrated called " Ammonite Ravine and the " Horn of Ammon" by Lewis W. Walker.

Puget Sound Oyster Bulletin, State of Washington, Gig Harbor,Wash. These bulletins are published weekly and usually are devoted to the commercial oyster crop, but occasionally contain articles of considerable general interest. For example the issue of Aug. 8,1951 has an extensive note " Observations of Mud Bay Red Tide". Heavy concentrations of red water were studied. " Mud Bay when first investigated was covered with what appeared to be a rust colored plankton bloom of varying intensity. In some areas the water very nearly reached the consistency of tomato soup while other portions had only a rust tinge to it ...." " Many fish were observed coming sporadically to the surface gasping and thrashing about, then drifting lethargically with the tide..." " There were as many as seven dead fish per square yard at the high tide line along the beach. Large numbers of seagulls were feeding on these d ad fish" " Abnormally large numbers of cockles were lying hinge down on the surface of the mud flats displaying no sign of life. About 50% of the cockles were gaping. Blue shell mussels were also gaping in large numbers. Small pink shelled clams (about ½ inch long) were windrowed at about mid-tide level. All of those bivalves contained meats and were being fed on by shore crabs"...

The final conclusion...." A very heavy concentration of a known red tide organism identified as Gymnodinium splendens (a small naked dinoflagellate) was found"

The Explorer Naturalist Vol. 2 No.2, June 1951 published by the Amateur Naturalists Association, Rio Linda, California contains an article " The Glamorous Cowries" by Paul H. Steele. Dr. Steele is certainly well qualified to write on the Cypraea and is considered to be one of the foremost authorities on this genus.

Universidad De La Habana- Escuela De Verano- The catalogues of courses offered during the summer session are interesting. The University of Havana is justly entitled to its place as one of the foremost institutions of the world and particularly for its excellent work on the flora and fauna of the West Indies.

SHELL NOTES by Frank Lyman Vol. 2, June,1951, Numbers 13,14,15. It looks as if Frank has even outdone his former fine issues this time with 35 pages and 5 full page plates. In fact one double plate. Any shell collector who is not receiving Shell Notes is really missing something good and should write to Frank Lyman, Lantana,Florida. I predict that in time if not now back issues will be in terrific demand. I note the nice figure of Purpura patula on the double plate. This species is of course, only found in the West Indies and Florida but the subspecies P. patula pansa Gould is not uncommon along this coast, Mexico south. The difference seems to be only in that the variety pansa always shows a white streak on the columella whereas typical patula is said to always be a solid chocolate. All I have ever seen bear this out but I have often wondered if any of those from the other coast also show this white band or rather streak in the aperture.

Frank's story about the $50 shell for a dog's drinking dish

and the $200 shell in the walk top my own latest experience. A lady strolled into our shop and priced or asked about one of the finest Volutes we had on display. I explained its rarity and that it was reasonable at $45. " I'll take that one" she said and then when I mentioned taking a minute to type up the correct name, locality etc. the answer was " Oh, never mind that. I am just buying a bridge prize."

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Paul Bonnot 1899-1951

Paul Bonnot of Menlo Park, the man whose marine research paved the way for development of much of California's oyster industry died of a heart attack Aug.1 shortly after docking his diving boat at Bodega Bay.

Mr. Bonnot, 52, was associate marine biologist with the California division of fish and game bureau of marine fisheries. With his wife, Hester, a Las Lomitas Elementary School District trustee, he had lived at 8 Perry Ave., Menlo Park for the past 28 years.

He was recognized as a world wide authority on thesseals and sea lions which inhabit California's rocky coast and islands, and made a census of these marine animals nearly every year.

At the time of his death, Mr. Bonnot was making an intensive abalone study to determine the best way to handle the shellfish north of San Francisco, how to get the best continuous sport catch, and whether it is possible to have a commercial catch without adversely affecting the sport catch.

He had docked his 35 foot diving tender, the Broadbill, and was walking to his car when the heart attack struck Mr. Bonnot.

He had done much deep sea diving in connection with his work, had rigged the ship and was operating with a crew of two ex-abalone divers.

John F. Janssen, assistant chief of the bureau of marine fisheries in San Francisco, said Mr. Bonnot in his early years with the bureau devoted much time to the study of oysters and their suitability for cultivation in California bays. His work led to the development of an oyster industry at Morro Bay, Drake's Bay, Humboldt Bay, and elsewhere.

He had also made important studies of clams, shrimp, and seaweeds, and had published a number of popular and scientific articles on these subjects as well as seals, sea lions, oysters and abalone.

Donald H. Fry, senior marine biologist and Mr. Bonnot's supervisor at headquarters in the Stanford University Museum of Natural History, said in tribute to his work, " He's going to be an exceedingly difficult man to replace."

Mr. Bonnot joined the fish and game division in 1925 as a warden, but was soon transferred to the marine fisheries bureau because of the background in the field of natural history and zoology he had gained while attending Stanford University.

He was born in Norfolk, Va. Mr. Bonnot was a member of the State Employees Association, American Wildlife Association, and the California Academy of Sciences. He was treasurer of the Penninsula Orchid Society.

In addition to his wife he is survived by two daughters, Mrs. Frank G. (Rosemary) Ford of Los Altos and Mrs. Frank (Eugenia) Farr of Gridley; three grandchildren, Kathleen and Stephen Paul Ford and Regan Eugenia Farr; his mother, Mrs. Alexander Bonnot of Hollywood; and a brother, Okeson Bonnot of Venice.

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On their return home from the meeting of the A.M.U.P.D. at Mills College the Roths were in an automobile accident. Someone plowed into the rear of their car when they were stopped at a red light in San Francisco. The little boy, Barry was asleep in the back seat and came out of it with a cut lip and loosened teeth. The parents were unhurt, though badly shaken up, but their car was a total loss.

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A note from the Bulletin of the Natural History Museum of San Diego. " On May 1st for the past several years it has become the custom for members o̶f̶ of the Museum staff to send floral birth-day greetings to Mrs. Kate Stephens. She is nearing her 100th anniversary and is still keenly interested in her life-long field, Conchology. "

Few persons have done as much if as much as Mr. and Mrs. Stephens for the cause of nature study and shells in particular. Many of our finest students today give credit to them for their first real interest.

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The Newark Sunday News, July 22,1951 carries a long article with the photograph of Mr. Max G. Hammerschlag of South Orange, N.J. with part of his collection. Mr.Hammerschlag has one of the finest collections in the country outside of the large institutions and is always eagerly seeking additional rarities.

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Dr. A. Myra Keen has sent in a review of the recently published " A Field Guide to the Shells"

" A new edition of " A Field Guide to the Shells" by Percy Morris has been released by Houghton Mifflin Co. on July 23,1951. The price is $3.75. The new edition of this useful book has been improved over the old not only by the addition of 112 species of mollusks to the previous coverage but also by addition of a author's names to the scientific names and by mention of such common names as are in use among collectors. There are six new plates of photographs, and both the text and some of the earlier plates have been revised. The eight color plates reproduce as attractively as in the original edition. The book should find a place on the shelf of any collector who has eastern American shells to identify."

** Note** This book is carried in stock and an order sent to John Q. Burch for it will receive immediate attention and the book by return mail.

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Another note from Dr. Keen- " One sentence should have been added to paragraph 2 of my " Outline of a proposed classification of the pelecypod family Cardiidae" in Minutes 111 for July,1951 p6. I should have explained that starred names are of groups known only in the fossil record. I hope readers of the Minutes will insert this in their copies."

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The Conchological Section, Buffalo Society of Natural Sciences, Buffalo, N.Y. are to be congratulated on their activity and genuine study. We have the minutes of their last meeting from Mrs. Margaret Teskey, 144 Harlem Ave., Buffalo 24, N.Y.

No doubt they will really be busy now with the A.M.U. convention for their guests.

MINUTES 113
SEPTEMBER 1951
CONCHOLOGICAL CLUB OF SOUTHERN CALIFORNIA

Subscription $2.50 per year

We are now meeting the first Tuesday of every month at 7:30 P.M. at the Los Angeles County Museum, Exposition Park, Los Angeles, California. All interested persons are cordially invited.

Please mail all news to your editor- John Q. Burch,
1584 W. Vernon Ave.,
Los Angeles 62, Calif.
Telephone Ax- 3-5710
Home Phone Ax 2-7965

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The annual meeting of the American Malacological Union in Buffalo, New York has been held and some of the reports on it will be listed in this issue.

Dr. Jeanne S. Schwengel will be the new president.

Mrs. Margaret Teskey will be the new Secretary and Treasurer.

We will no doubt receive more information about the meeting soon.

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Dr. Albert R. Mead while attending the meeting receiwed a message that his little girl had been stricken with Polio. Of course, his many friends will be greatly concerned.

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Ruth Coats was our sole AMUPD representative at Buffalo and we expect to hear all of the news from Ruth soon. Incidentally Miss Coats will soon be a resident of Carlsbad, California and we naturally expect an active member of our club.

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OUTLINE OF A PROPOSED CLASSIFICATION OF THE PELECYPOD FAMILY VENERIDAE

A. Myra Keen
Stanford University

The proposed classification here given in skeletal form will be published at more length, with illustrations of many genera, in the forthcoming "Treatise of Invertebrate Paleontology" that is being prepared by a number of paleontologists under the leadership of Dr. Raymond C. Moore, Editor. As the "Treatise" will probably not be published for some months, the outline of classification of the Veneridae is here given with a two-fold purpose; first, to make available to persons wishing to describe new species a scheme of generic arrangement and a list of available units; and second, to invite criticism and suggestions.

The list below covers all units that I consider valid. Homonyms and synonyms are included in the index following the list proper. Starred names are of groups known only in the fossil record. Presumed subgenera are shown by indention; for example, under the genus _Dosina_ are ranked the subgenera _Dosina_, _s.s._, _Marama_, and so on. Some workers may prefer to raise many of these to the full rank of genus; others may wish to demote groups here treated as genera. That, of course, is their privilege, for all classificatory ranking is a matter of individual judgment.

Original references for generic names proposed prior to 1935 are to be found in a useful paper by Frizzell (1936). Later proposed names may be traced through the Zoological Record or Neave (1950).

Type species are here cited in the name combination of the author proposing the species, which is not necessarily the combination used by the author proposing the generic name; in a few cases, however, synonymy of species is briefly indicated. Manner of type designation is shown by the following symbols: OD, original designation; M, monotypy; T, absolute tautonymy; SD, subsequent designation, with name of person and date. Dates of publication of type species are not always given if they are the same as that of the genus.

Family Veneridae Leach - 1819

Subfamily 1. Venerinae Swainson - 1840

Sculpture usually both radial and concentric; anterior lateral present, especially in left valfe. Eocene to Recent.

- _Venus_ Linnaeus, 1758. _Venus verrucosa_ Linnaeus, 1758 (SD, Gray,1847)
- *_Netara_ Frizzell, 1936. _Cytherea staminea_ Conrad, L839 (OD)
- _Circomphalus_ Morch, 1853. _Venus foliaceo-lamellosa_ Dillwyn (SD, Sacco, 1900)
- _Antigona_ Schumacher, 1817. _A. lamellaris_ Schumacher (OD)
- _Ventricoloidea_ Sacco, 1900. _Cytherea multilamella_ Lamarck,1818(OD)
- _Dosina_ Gray, 1835, _D. Zelandica_ Gray (M)
    - _Dosina_, _s.s._

*Marma Marwick, 1927. M. murdochi Marwick (OD)
*Hina Marwick, 1927. Marama pinguis Marwick, 1927 (OD)
*Kuia Marwick, 1927. Chione vellicata Hutton, 1873 (OD)
*Plurigens Finlay, 1930. P. phenax Finlay (OD)
*Bassinaria Marwick, 1928. B. macclurgi Marwick (OD)

Subfamily 2. Circinae Dall, 1913

Sculpture of more or less dichotomous radial ribs; anterior lateral teeth present. Oligocene to Recent.

Circe Schumacher, 1817. C. violacea Schumacher (OD)
Circe, s.s.
Parmulophora Dall, 1905. Venus corrugata Dillwyn, 1817 (OD)
Circenita Jousseaume, 1888. Venus arabica "Chemnitz" Dillwyn(OD)
Redicirce Iredale, 1936. R. mistura Iredale (OD)
Privigna Dall, Bartsch, and Rehder, 1938. P. pilsbryi D.B.&R.(OD)
Fluctiger Iredale, 1924. F. royanus Iredale (OD)
Gafrarium Roding, 1798. Venus pectinata Linnaeus, 1758 (SD,Dall,1902)
Gouldia C.B. Adams, 1847. Thetis cerina Adams 1845 (SD, Dall, 1883)
Gouldia, s.s.
Dorisca Dall, Bartsch and Rehder, 1938. D. cookei D.B. & R.(OD)
Gouldiopa Iredale, 1924. Gouldia australis Angas, 1865 (OD)
*Meretrissa Jukes-Browne, 1908. Cytherea depressa Deshayes, 1858 (OD)

Subfamily 3. Sunettinae Stoliczka, 1870

Ligament in a very deeply excavated escutcheon; shell smooth or with concentric ribbing; anterior laterals present, elongate. Eocene to Recent.

Sunetta Link, 1807. Donax scripta Linnaeus, 1758 (SD, Dall, 1902)
Sunetta, s.s.
Sunettina Pfeiffer, 1869. Cytherea solanderii Gray, 1825 (M)
Cyclosunetta Fischer-Piette, 1939. Sunetta contempta Smith 1891 (OD)
*Meroena Jukes-Browne, 1908. Cytherea trigonula Deshayes, 1825 (OD)
*Dosiniopsis Conrad, 1864. D. meekii Conrad (SD, Stoliczka, 1870)

Subfamily 4. Meretricinae Fischer, 1887

Shells elongate, never orbicular, sculpture subdued; hinge with cardinal teeth tending to radiate, anterior laterals often with dorsal and ventral denticles in right valve. Lower Cretaceous to Recent.

Meretrix Lamarck, 1799. Venus meretrix Linnaeus, 1758 (T)
*Aphrodina Conrad, 1869. Meretrix tippana Conrad, 1858 (OD)
*Aphrodina, s.s.
*Sechurina Olsson, 1944. A. (S.) australis Olsson (OD)
*Tikia Marwick, 1927. Callista thomsoni Woods, 1917 (OD)
*Rohea Marwick, 1938. Paradione trigonalis Marwick, 1927. (OD)
*Eomeretrix Turner, 1938. Pitaria martini Dickerson, 1914 (OD)
*Tivelina Cossmann, 1886. Cytherea rustica Deshayes,1928 (SD,Crosse, 1886)
Tivela Link, 1807. Venus Tripla Linnaeus, 1771 (SD, Herrmannsen, 1849)

Tivela, s.s.

Pachydesma Conrad, 1854. Donax stultorum, Mawe, 1823

Eutivela Dall, 1891. Tivela perplexa= Venus isabelleana D'Orb,1846 (OD)

Comus Eox, 1930Venus platysulax Tomlin, 1924 (OD)

*Grateloupia Desmoulins, 1828. Donax irregularis Basterot,1825 (M)

*Grateloupia, s.s.

*Cytheriopsis Conrad, 1865. Cytherea hydana Conrad, 1833 (M)

*Xenoloupia Clark and Durham, 1946. X. carmenesis Clark & Durham(OD)

Transennella Dall, 1883. Cytherea conradina Dall (OD)

Subfamily 5 Pitarinae Stewart, 1930

Inequilateral, beaks anterior; cardinal teeth not tending to radiate; anterior laterals well developed. Upper Cretaceous to Recent.

Pitar Romer, 1857. Venus tumens Gmelin, 1790 (M)

Pitar, s.s.

Hyphantosoma Dall, 1902. Cytherea carbasea Guppy, 1866 (OD)

Lamelliconcha Dall, 1902. Cytherea concinna Sowerby, 1835 (OD)

*Calpitaria Jukes-Browne, 1908. Cytherea sulcataria Deshayes, (1825 OD)

Hysteroconcha Herrmannsen, 1847. Venus dione Linnaeus, 1758 (SD, Fischer, 1887)

*Pitarella Palmer.1927. Callocardia gatunensis Dall, 1903 (OD)

*Rhabdopitaria Palmer, 1927. Callocardia Astartoides Gardner, (1923 (OD)

*Meisenia Makiyama, 1936. M. tateiwai Makiyama (OD)

Tinctora Jukes-Browne, 1914. Cytherea vulnerata Broderip,1835(OD)

*Omnivenus Palmer, 1927. Cytherea discoidalis Conrad, 1833 (OD)

Pitarina Jukes-Brown, 1913. Cytherea citrina Lamarck, 1818 (OD)

Katherinella Tegland, 1929. Callocallista arnoldi Weaver,1916(OD)

Nanopitar Rehder, 1943. P. (N.) pilula Rehder (OD)

Megapitaria Grant and Gale, 1931. Cytherea aurantiaca Sowerby,1831 (Od)

Lioconcha Morch, 1853. Venus castrensis Linnaeus, 1758 (SD, Stoliczka, 1870)

Callista Poli, 1791. Venus chione Linnaeus, 1758 (SD, Meek, 1876)

Callista, s.s.

*Chionella Cossmann, 1886. Cytherea ovalina Deshayes, 1858 (SD, Crosse, 1886)

Costacallista Palmer, 1927. Venus erycina Linnaeus, 1758 (OD)

*Microcallista Stewart, 1930. Cytherea proxima Deshayes, 1858(OD)

Lepidocardia Dall, 1902. Chione floridella Gray, 1838 (OD)

Macrocallista Meek, 1876. Venus gigantea Gm.= V. nimbosa Solander (1786 M)

Notocallista Iredale, 1924. Cytherea kingii Gray, 1827 (OD)

Notocallista s.s.

Striacallista Marwick, 1938. Cytherea multistriata Sowerby,1852

Fossacallista Marwick, 1938. Paradione parki Marwick, 1926 (OD)

Callocardia A. Adams, 1864. C. guttata Adams (M)
Callocardia, s.s.
Agriopoma Dall, 1902. Cytherea texasiana Dall, 1892 (OD)
*Atopodonta Cossmann, 1886. Venus conformis Deshayes, 1858 (SD, Crosse, 1886)
*Nitidavenus Vokes, 1939. Cytherea nitida Deshayes, 1858 (OD)
Aphrodora Jukes-Browne, 1914. Callista birtsi Preston, 1905 (OD)
Amiantis Carpenter, 1864. Cytherea callosa Conrad, 1837 (M)
Amiantis, s.s.
Eucallista Dall, 1902. Cytherea purpurata Lamarck, 1818 (OD)
*Venidia Clark and Durham, 1946. V. steinekei Clark and Durham(OD)
*Gilbertharrisella Hodson and Hodson, 1927. Pitaria lynei H. & H.(OD)
*Trigonocallista Rennie, 1930. Meretrix umzambiensis Woods, 1906(OD)
*Calva Popenoe, 1937. C. regina Popenoe (OD)
*Marwickia Finlay, 1930. Finlaya parthiana Marwick, 1927 (OD)
Sinodia Jukes-Browne, 1908. Artemis trigona Reeve, 1850 (OD)
Saxidomus Conrad, 1837. S. nuttalli Conrad (M)

Subfamily 6. Dosiniinae H. & A. Adams, 1858

Equivalve, lenticular, concentrically striate; hinge with a left anterior lateral. Upper Cretaceous to Recent.

Dosinia Scopoli, 1777. Chama dosin Adanson= Venus concentrica Born, 1780 (M)
Dosinia, s.s.
Asa Basterot, 1825. Venus lincta Pult.= V. lupinus Linn.1758 (M?)
Phacosoma Jukes-Browne, 1912. Artemis japonica Reeve,1850 (OD)
Austrodosinia Dall, 1902. Cytherea anus Philippi, 1848 (OD)
Kereia Marwick, 1927. Dosinia greyi Zittel, 1864 (OD)
Dosinella Dall, 1902. Cytherea angulosa Philippi, 1847 (OD)
*Kakahuia Marwick, 1927. D. (K.) suteri Marwick (OD)
*Raina Marwick, 1927. D. (R.) bensoni Marwick (OD)
Dosinisca Dall, 1902. Artemis alata Reeve, 1850 (OD)
Dosinorbis Dall, 1902. Artemis bilunulata Gray, 1838 (OD)
Kaneharaia Makiyama, 1936. Dosinia kaneharai Yokoyama, 1926 (OD)
Pectunculus Da Costa, 1778. Venus exoleta Linnaeus, 1758 (SD, Jukes-Browne, 1911)
*Pelecyora Dall, 1902. Cytherea hatchetigbeensis Aldrich, 1886 (OD)
*Dosinobia Finlay and Marwick, 1937. Dosinia ongleyi Marwick, 1927 (OD)
*Dollfusia Cossmann, 1886. D. crassa Cossmann (M)

Subfamily 7. Cyclininae Frizzell, 1936

Resembling Dosiniinae in form but without anterior lateral teeth or incised lunule. Eocene to Recent.

Cyclina Deshayes, 1850. Venus sinensis Gmelin, 1790 (SD, Dall,1902)
Cyclina, s.s.
Cyclinorbis Makiyama, 1926. C. (C.) lunulata Makiyama (OD)
Cyclinella Dall, 1902. Dosinia tenuis Recluz, 1852 (OD)
*Luciploma Olsson, 1942. L. panamensis Olsson (OD)

Subfamily 8. Gemminae Dall, 1902

Small with marginal grooves and denticles simulating lateral teeth; inner ventral margin crenulate. Eocene to Recent.

- Gemma Deshayes, 1853. Venus gemma Totten, 1834 (T)
- Parastarte Conrad, 1862. Astarte triquetra Conrad, 1846 (OD)

Subfamily 9. Clementiinae (Frizzell, 1936) emend.

Inequilateral, thin, without escutcheon; sculpture subdued or wanting, inner ventral margin smooth; hinge without lateral teeth. Cretaceous to Recent.

- Clementia Gray, 1842. Venus papyracea Gray, 1925 (SD, Gray, 1847)
    - Clementia, s.s.
    - Egesta Conrad, 1845. Venus inoceriformis Wagner, 1840 (M)
    - Terentia Jukes-Browne, 1914. Clementia granulifera Sowerby,1852(OD)
- *Flaventia Jukes-Browne, 1908. Venus ovalis Sowerby, 1827 (OD)
- *Psathura Deshayes, 1858. Erycina fragilis Lamarck, 1805 (M)
- Compsomyax Stewart, 1930. Clementia subdiaphana Carpenter, 1864 (OD)

Subfamily 10. Tapetinae Fischer, 1887

Ovate to elongate; inner margins smooth, at least posteriorly; hinge plate narrow, with no lateral teeth. Cretaceous to Recent.

- Tapes Megerle von Muhlfeldt, 1811. Venus literata Linnaeus, 1758(M)
    - Tapes, s.s.
    - Ruditapes Chiamenti, 1900. Venus decussata Linnaeus, 1758 (M?)
    - Myrsus H. and A. Adams, 1858. Venus corrugata Gmelin, 1790. (SD, Stoliczka, 1870)
    - *Veneritapes Cossmann, 1886. Psammobia bervillei Deshayes, 1858(M)
    - *Myrsopsis Sacco, 1900. Venerupis pernarum Michelotti, 1839 (OD)
    - *Siratoria Otuka, 1937. Paphia siratoriensis Otuka. 1934 (OD)
    - *Taurotapes Sacco, 1900. Venus craveri Michelotti, 1847 (OD)
- Venerupis Lamarck, 1818. Venus perforans Montagu, 1803 ?= V. saxatilis Fleuriau-Bellevue, 1902 (SD, Children, 1823)
    - Venerupis, s.s.
    - Paphirus Finlay, 1926. Venus largillierti Philippi, 1847 (OD)
- *Legumen Conrad, 1858. L. ellipticus Conrad (SD, Stoliczka, 1870)
- *Cyprimeria Conrad, 1864. Cytherea excavata Morton, 1833 (M)
- *Cyclorisma Dall, 1902. Cyclothyris carolinensis Conrad, 1875 (OD)
- *Cyclorismina Marwick, 1927. C. woodsi Marwick (OD)
- *Tenea Conrad, 1870. Mysia parilis Conrad, 1860 (M)
- Paphia Roding, 1798. P. alapapilionis Roding (SD, Dall, 1902)
    - Paphia, s.s.
    - Protapes Dall, 1902. Venus gallus Gmelin, 1790 (OD)
    - Callistotapes Sacco, 1900. Venus vetula Basterot, 1825 (OD)
- Marcia H. and A. Adams, 1857. Venus pinguis Chem.= V.opima Gmelin, 1790 (SD, Kobelt, 1881)
    - Marcia, s.s.
    - *Similivenus Cossmann, 1910. Venus solida Deshayes, 1824 (OD)
    - *Mercimonia Dall, 1902. Venus bernayi Cossmann, 1886 (OD)
    - *Gomphomarcia Kautsky, 1929. G. abeli Kautsky (OD)
    - Granicorium Hedley, 1906 G. indutum Hedley (OD)

*Venerella Cossmann, 1886. Venerupis hermonvillensis Deshayes, 1858 (SD, Crosse, 1886)
Eumarcia Iredale, 1924. Venus fumigata Sowerby, 1853 (OD)
- Eumarcia, s.s.
- Atamarcia Marwick, 1927. E. (A) sulcifera Marwick (OD)
- Opimarcia Marwick, 1948. E. (O) healyi Marwick (OD)

Katelysia Romer, 1857. Venus scalarina Lamarck, 1818 (SD, Kobelt, 1881)
- Katelysia, s.s.
- *Textivenus Cossmann, 1886. Venus texta Lamarck, 1805 (SD, Dall, 1902)
- *Nipponomarcia Ikebe, 1941. K. (N.) nakamurai Ikebe (OD)

Gomphina Morch, 1853. Venus undulosa Lamarck, 1818 (M)
- Gomphina, S.S.
- Gomphinella Marwick, 1927. Gomphina maorum Smith, 1902 (OD)
- Macridiscus Dall, 1902. Donax aequilatera Sowerby, 1925 (OD)
- Jukesena Iredale, 1915. Psephis foveolata Cooper & Preston, 1910 (OD)

Liocyma Dall, 1870. Venus fluctuosa Gould, 1841 (OD)
Psephidia Dall, 1902. Psephis lordi Baird, 1863 (OD)
Irus Oken, 1815. Donax irus Linnaeus, 1758 (T)
- Irus, s.s.
- Notirus Finlay, 1928. Venerupis reflexa Gray, 1843 (OD)
- Notopaphia Oliver, 1923. Venerupis elegans Deshayes, L854 (OD)
- Paphonotia Hertlein and Strong, 1948. Petricola elliptica Sowerby 1834 (OD).

Subfamily 11. Chioninae (Frizzell, 1936) emend.

Ovate-trigonal, inequilateral, sculpture cancellate; lunule impressed; inner margins usually crenulate; hinge plate and teeth well developed, without anterior laterals; pallial sinus short. Middle eocene to Recent.

Chione Megerle von Muhlfeldt, 1811. "Venus dysera L." = V. cancellata Linnaeus 1758 (SD, Gray, 1847)
- Chione, s.s.
- Chionopsis Olsson, 1932. Venus amathusia Philippi, 1844 (OD.)
- *Securella Parker, 1949. Venus securis Shumard, 1858 (OD)
- Lirophora Conrad, 1863. Circomphalus athleta= Venus latilirata Con., 1841 (SD, Dall, 1902)
- *Hinemoana Marwick, 1927. Chione accuminata Hutton, 1873 (OD)
- ?*Frigichione Fletcher, 1938. Chione permagna Tate, fide Zool.Rec.

Mercenaria Schumacher, 1817. M. violacea Schum.= Venus mercenaria Linn., 1758 (T)
Placamen Iredale, 1925. Venus placida Philippi, 1844 (OD)
Cnamelea Morch, 1853. Venus gallina Linnaeus, 1758 (SD, Bucquoy, [illegible] Dautz., Dollf., 1893.
Tawera Marwick, 1927. Venus spissa Deshayes, 1835 (OD)
*Turia Marwick, 1927. T. chattonensis Marwick (OD)
Anomalocardia Schumacher, 1817. Venus flexuosa Linnaeus, 1767 (OD)
- Anomalocardia, s.s.
- Anomalodiscus Dall, 1902. Venus squamosa Linnaeus, 1758 (OD)

Timoclea, Brown, 1827. Venus ovata Pennant, 1777 (M)
- Timoclea, s.s.
- Glycydonta Cotton, 1936. Venus marica Linnaeus, 1758 (OD)
- Chioneryx Iredale, 1924. Venus striatissima = Erycina cardioides Lam., 1818 (OD).

Protothaca Dall, 1902. Chama thaca Molina, 1782 (OD)
  Protothaca, s.s.
  Callithaca Dall, 1902 Tapes tenerrima Carpenter, 1857 (OD)
  Protocallithaca Nomura, 1937. Venus adamsii Reeve, 1863 (OD)
  Austrovenus Finlay, 1926. Venus stutchburii Wood, 1828 (OD)
  Tuangia Marwick, 1927. Venus crassicosta Deshayes, 1835 (OD)
  Notochione Hertlein and Strong, 1948. Venus Columbiensis Sowerby 1863 (OD)
  Nioche Hertlein and Strong, 1948. Venus asperrima Sowerby,1835 (OD)
Eurhomalea Cossmann, 1920. Venus rufa Lamarck, 1818 (OD)
Humilaria Grant and Gale, 1931. Venus kennerleyi Reeve, 1863 (OD)
Samarangia Dall, 1902. Venus quadrangularis Adams and Reeve, 1852(OD)
Clausinella Gray, 1851. Chione fasciata= Pectunculus fasciatus DaCosta, 1778 (M)
Bassina Jukes-Browne, 1914. Venus paucilamellata = Pachyphylla Jonas, 1839 (OD)
Callanaitis Iredale, 1917. Venus yatei Gray, 1835 (OD)

INDEX TO NAMES IN THE FAMILY VENERIDAE

Valid names are indexed by subfamily groups without regard to rank as subgenus or genus: for example Agriopoma appears in Subfamily 5 (Pitarinae) of the generic list, and so on. Homonyms are indicated by quotation marks.

"Acolus" = Jukesena
Acritopaphia = Paphia
Aeora = Dosiniopsis
Agriopoma, 5
Ameghinomya, 1
Amiantis, 5
Ampithaea = Pectunculus
"Amygiala"-= Ruditapes
"Anaitis" = Clausinella
Anomalocardia, 11
Anomalodiscus, 11
Antigona, 1
Aphrodina, 4
Aphrodora, 5
Arctoe = Dosinia
Artemis = Pectunculus
"Artena" = Natara
Asa, 6
Atamarcia, 10
Atopodonta, 5
Austrodosinia, 6
Austrovenus, 11
Baroda = Legumen
Bassina, 11
Bassinaria, 1
"Blainvillia" = Clemtia
Bonartemis = Dosinia
Callanaitis, 11
Callicistronia = Parastarte
Callista, 5
Callistina = Aphrodina
Callistoderma = Callista
Callistotapes, 10
Callithaca, 11
"Callizona" = Tinctora
Callizonata = Tinctora
Callocallista = Katherinella
Callocardia, 5
Calpitaria, 5
Calva, 5
"Caryatis" = Pitar
Catelysia = Katelysia
Cerana = Pectunculus
Chamelea, 11
Chione, 11
Chionella, 5
Chioneryx, 11
Chionopsis, 11
Circe, 2
Circenita, 2
Circomphalus, 1
Clausina = Venus
Clausinella, 11
Clementia, 9
Compsomyax, 9
Comus, 4
Cordiopsis, 5
Costacallista, 5

Crassivenus = Mercenaria
Crista = Gafrarium
Cryptogramma = Anomalocardia
"Cryptonema" = Anomalodiscus
Cyclina, 7
Cyclinella, 7
Cyclinorbis, 7
Cyclorisma, 10
Cyclorismina, 10
Cyclosunetta, 3
"Cyclothyris" = Cyclorisma
Cyprimeria, 10
"Cytherea" = Dosina
Cytheriopsis, 4
"Dione" = Hysteroconcha
Dollfusia, 6
Dorisca, 2
Dorsina = Dosina
Dosina, 1
Dosinella, 6
Dosinia, 6
Dosinidia, 6
Dosiniopsis, 3
Dosinisca, 6
Dosinobia, 6
Dosinorbis, 6
Dosinula = Dosina
Egesta, 9
Eocyclina = Cyclina
Eomeretrix, 4
Eucallista, 5
Eumarcia, 10
Eurhomalea, 11
Eusalacia = Callanaitis
Eutapes = Venerupis
Euterentia = Terentia
Eutivela, 4
Exoleta = Pectunculus
Fallartemis = Dosinia
"Finlaya" = Marwickia
Flaventia, 9
Fluctiger, 2
Fossacallista, 5
Frigichione, 11
Gafrarium, 2
Gemma, 8
Gilbertharrisella, 5
Glycydonta, 11
Gnidiella = Chionopsis
Gomphina, 10
Gomphinella, 10
Gomphomarcia, 10
Gouldia, 2
Gouldiopa, 2
Granicorium, 10
Grateloupia, 4
Hemitapes = Marcia
"Hermione" = Chamelea
Hina, 1
Hinemoana, 11
Humilaria, 11
Hyphantosoma, 5
Hysteroconcha, 5
"Irona" = Notirus
Irus, 10
Jukesena, 10
Kakahuia, 6
Kaneharaia, 6
Katelysia, 10
Katherinella, 5
Kereia, 6
Kuia, 1
Lamelliconcha, 5
Legumen, 10
Lepidocardia, 5
"Leucothea" = Aphrodora
"Leukoma" = Nioche
Levimarcia = Marcia
Lioconcha, 5
Liocyma, 10
Lirophora, 11
Luciploma, 7
Macridiscus, 10
Macrocallista, 5
Marama, 1
Marcia, 10
Marwickia, 5
Megapitaria, 5
Meisenia, 5
Mercenaria, 11
Mercimonia, 10
Meretrissa, 2
Meretrix, 4
Meridosinia, 6
Meroe = Sunetta
Meroena, 3
"Metis" = Myrsus
Microcallista, 5
"Murcia" = Anomalocardia
Myrsopsis, 10
Myrsus, 10
Nanopitar, 5
Netara, 1
Nioche, 11
Nipponomarcia, 10
Nitidavenus, 5
Notirus, 10
Notocallista, 5
Notochione, 11
Notopaphia, 10
"Nympha" = Meretrix
Omnivenus, 5
Omphaloclathrum = Antigona

Opimarcia, 10
Orbiculus = Pectunculus
"Ortygia" = Chamelea
Pachydesma, 4
Paphia, 10
Paphirus, 10
Paphonotia, 10
Paradione = Chionella
Parastarte, 8
Paratapes = Paphia
Pardosinia, 6
Parembola = Tapes
"Parmulina" = Parmulophora
Parmulophora, 2
Parvivenus = Timoclea
"Pasiphae" = Timoclea
Pectunculus, 6
Pelecyora, 6
Periglypta = Dosina
Phacosoma, 6
Pitar, 5
Pitarella, 5
Pitaria = Pitar
Pitarina, 5
Placamen, 11
Plurigens, 1
Polititapes = Venerupis
Privigna, 2
Protapes, 10
Protocallithaca, 11
Protothaca, 11
Proxichione = Dosina
Psathura, 9
Psephidia, 10
"Psephis" = Psephidia
Pullastra = Venerupis
Raina, 6
Redicirce, 2
Rhabdopitaria, 5
"Rhomalea" = Eurhomalea
Rohea, 4
Ruditapes, 10
"Salacia" = Callanaitis
Samarangia, 11
Saxidomus, 5
Sechurina, 4
Securella, 11
Semelartemis, 6
Similivenus, 10
Sinodia, 5
Siratoria, 10
Solanderina = Sunettina
Striacallista, 5
Sunemeroe = Sunetta
Sunetta, 3
Sunettina, 3
Tapes, 10
Taurotapes, 10
Tawera, 11
Tenea, 10
Terentia, 9
Textivenus, 10
"Textrix" = Paratapes
Tigammona = Dosina
Tikia, 4
Timoclea, 11
Tinctora, 5
Tivela, 4
Tivelina, 4
Totteniana = Gemma
Transennella, 4
"Trigona" = Tivela
"Trigonella" = Pachydesma
Trigonocallista, 5
Triquetra = Anomalocardia
Tuangia, 11
Turia, 11
Venerella, 10
Veneritapes, 10
Venerupis, 10
Venidia, 5
Ventricola = Venus
Ventricoloidea, 1
Venus, 1
Veremolpa = Timoclea
Xenoloupia, 4
Zucleia = Clausinella

GENERIC NAMES OF UNCERTAIN STATUS, WITH NOTES

(These names are not included in the index)

*_Agapella_ Vokes, 1946. Probably belongs in Cyprinidae.
Aureitapes Chiamenti, 1900. Reference not seen; probably a synonym of _Tapes_.
*_Blagraveia_ Cox, 1931. Probably not a venerid.
Cyaneitapes Chiamenti, 1900. Probably a synonym of _Tapes_ (reference not yet consulted.)

**Cyclopellatia* Cossman, 1907. Possibly a venerid (reference not yet consulted).

**Gibboconcha* Gregoric, 1930. Type species indeterminate, teste Dr. L.R. Cox *in litt.*

Globivenus Coen, 1934. Reference not yet consulted.

**Mioclausinella* Kautsky, 1936. Probably a nomen nudum.

**Paleomarcia* Fletcher, 1938. Reference not yet consulted; name may be subject to rejection because no type was cited (fide Zoological Record)

**Platopis* Whitfield, 1891. Probably belongs in Cyprinidae.

**Radiocrista* Dall, 1902. Type species indeterminate from figure.

Veneriglossa Dall, 1886. Type species unfigured. Possibly a synonym of *Callocardia*.

**Waisiuconcha* Beets, 1942. Probably belongs in Cyprinidae.

Zoreia Brusina, 1907. Reference not yet consulted.

REFERENCES

Frizzell, Don L. "Preliminary reclassification of Veneracean pelecypods," Bull. Musee Roy. D'Hist. Nat. Belgique, vol. 12, no. 34, Dec., 1936, pp. 1-84.

Neave, S.A. *Nomenclator Zoologicus*: A list of the names of genera and subgenera from the Tenth Edition of Linnaeus, 1758, to the end of 1935. Zool. Soc. London, 4 vols., 1939-40.

________ *ibid.*, Vol. 5, 1936-1945, (1950)

Zoological Record. Published in yearly volumes by the Zoological Society of London, Regent's Park, London.

SEVENTEENTH ANNUAL MEETING
OF
THE AMERICAN MALACOLOGICAL UNION

THE SEVENTEENTH ANNUAL MEETING OF THE AMERICAN MALACOLOGICAL UNION WAS HELD IN BUFFALO, NEW YORK, AUGUST 22, 23, 24, 1951. THE BUFFALO SOCIETY OF NATURAL SCIENCES WAS HOST AND THE CONCHOLOGICAL SECTION OF THE MUSEUM WAS CO-HOST. HOTEL HEADQUARTERS WAS AT "THE LENOX" AND THE MEETINGS WERE HELD IN THE AUDITORIUM OF THE MUSEUM. BOTH BREAKFAST AND LUNCHEON WERE SERVED AT THE MUSEUM CAFETERIA ON WEDNESDAY AND THURSDAY.

SEVENTH-FIVE MEMBERS AND GUESTS REGISTERED WEDNESDAY MORNIBG FROM ARIZONA, FLORIDA, ILLINOIS, KANSAS, MARYLAND, MASSACHUSETTS, VIRGINIA, WASHINGTON, D.C. AND CANADA. NEW YORK STATE WAS WELL REPRESENTED WITH 34 MEMBERS ATTENDING AND THE 41 FROM THE OTHER STATES MENTIONED.

THE ANNUAL DINNER WAS HELD AT THE LENOX HOTEL WITH 72 ATTENDING. FOLLOWING THE DINNER DR. ALBERT R. MEAD OF THE UNIVERSITY OF ARIZONA GAVE A LIVELY AND ENLIGHTENING TALK WHILE SHOWING KODACHROME SLIDES WHICH HE TOOK ON A 23,000 MILE SURVEY OF THE GIANT AFRICAN SNAIL ACHATINA FULICA.

THURSDAY EVENING MEMBERS WERE GUESTS OF GENERAL FRANK AND DR. JEANNE SCHWENGEL AT A BUFFET SUPPER GIVEN AT "THE LENOX". THEIR GENEROSITY IS THOROUGHLY ENJOYED AND APPRECIATED BY ALL.

FRIDAY WAS A PERFECT DAY FOR THE FIELD AND SIGHT-SEEING TRIP WHICH WAS BY BUS. WE CROSSED THE PEACE BRIDGE INTO CANADA AND FOLLOWED THE NIAGARA RIVER DRIVE TO NIAGARA FALLS, WHERE A STOP WAS MADE AT A VANTAGE POINT WERE THE 40 MEMBERS WHO JOINED THE TRIP COULD VIEW BOTH THE AMERICAN FALLS AND THE CANADIAN HORSESHOE FALLS. THE BUS CONTINUED ON DOWN THE RIVER TO "THE GLEN" WHERE THE COLLECTORS SPENT TWO HOURS SEARCHING FOR LAND SNAILS. ON THE RETURN TRIP THE BUS CROSSED THE NIAGARA RIVER AT THE RAINBOW BRIDGE AT NIAGARA FALLS, ONTARIO AND PARKED AT PROSPECT POINT ON THE AMERICAN SIDE OF THE RIVER WHERE THE MEMBERS WERE TAKEN DOWN TO THE WATER'S EDGE (MAID OF THE MIST LANDING) IN AN ELEVATOR AND COLLECTED SNAILS FROM THE MOSS COVERED ROCKS BELOW THE AMERICAN FALLS. THE BUS WITH ITS WEARY PASSENGERS RETURNED TO THE LENOX HOTEL ABOUT 5 P.M. WITH IT

A LIST OF SHELLS COLLECTED ON THE TRIP WILL BE IN THE NEXT A. M. U. BULLETIN.

ATTACHED IS A PROGRAM OF THE PAPERS PRESENTED.

MARGARET M. TEARE

V.P. CONCHOLOGICAL SECTION OF THE
BUFFALO SOCIETY OF NATURAL SCIENCES
BUFFALO, NEW YORK

The American Malacological Union
Seventeenth Annual Meeting
Buffalo Museum of Science
August 22, 23, 24, 1951

Wednesday, August 22

9 A.M. to 12	Registration, Hall of Plant Life, Main Floor
10 A.M.	Council meeting in Board Room, second floor
	Luncheon in Museum cafeteria.
2 to 4:30 P.M.	Presentation of papers in Museum auditorium, ground floor
	Address of welcome – Mr. Fred T. Hall, Director, Buffalo Museum of Science
	Response – Dr. Joseph P. E. Morrison, President, American Malacological Union
	Trends in Malacology (30 minutes) Mr. William J. Clench, Museum of Comparative Zoology, Cambridge, Mass.
	Comparison of the Mollusks in Adjacent Ohio River and Lake Erie Drainage Systems (15 min) Dr. Ralph W. Dexter, L. H. Swart, and A. F. Davis. Presented by Dr. Dexter, Kent State University, Kent, Ohio
	Gastropods and the Ecology of Loess Deposition (10 min.) Dr. A. Byron Leonard, University of Kansas
	An Old Problem in Naiad Nomenclature (20 min.) Dr. Henry van der Schalie, Univ. of Michigan
	The Preputial Organ in Snails of the Genus Helisoma. 3 lantern slides. Mr. Emile Abdel-Malik, Univ. of Mich. Presented by Dr. Van der Schalie.
7 o'clock	Annual dinner, Hotel Lenox, 140 North Street
8:30	Hunting the Giant African land snail Achatina fulica, in Micronesia. Kodachromes. Prof. Albert R. Mead, University of Arizona.

Thursday, August 23

10 A.M.	Presentation of papers, Museum auditorium.
	World Relations of the Melanians. Lantern. (20 min.) Dr. Joseph P.E. Morrison, Smithsonian Institution.
	Land Snails of the Piedmont Region of North Carolina. Lantern slides. Miss Charlotte Dawley, University of North Carolina.
	Some Problems in the Pholadidae. Kodachrome. (20 min.) Miss Ruth D. Turner, Museum of Comparative Zoology.
	Genetic Analysis of Wild Populations of the Land Snail Cerion. 10 lantern slides. (30 min.) Dr. R. Tucker Abbott, Smithsonian Institution.
Noon	Photograph of the group by Charles E. Simmons, Curator of Photography, Buffalo Museum of Science. All members and visitors are requested to be in readiness.
2 to 4:30 P.M.	Presentation of papers.
	Triton's Pipe Organ. Film and recordings. (20 min.) Mrs. Gertrude Villforth Musial, assisted by Eugene Musial, members of the Conchological Section, Buffalo Society of Natural Sciences.
	Malacological Legislation (20 min.) Prof. Albert R. Mead, University of Arizona
	"Collecting in Nova Scotia" and Kodachrome slides – by Gordon K. MacMillan of Pittsburg, Pa.
	The Story of Tyrian Purple. 2 colored slides. R. Tucker Abbott, Smithsonian Institution
	Portraits of Some Florida Opisthobranchs. Kodachrome. (20 min.) Dr. Henry A. Pilsbry, Academy of Natural Sciences, Philadelphia
	Glimpses of the Past (20 min.) Dr. Paul Bartsch, Smithsonian Institution
	Carving of Niagara Gorge. Mr. John D. Sargent, Buffalo Museum of Science.
	Important Admonitions Regarding the Field Trip. Mrs. Margaret C. Teskey, Chairman, Excursion Committee.

NEW PUBLICATIONS

The Living Cypraeidae of the Western Hemisphere by William W. Ingram. Bulletin 136 of the Paleontological Research Institution.

This is a genuine contribution representing many years of research, We thank Dr. Ingram for a valuable paper and all should place this work in their libraries who are interested in the Cypraeidae,

The fact remains that there is a great deal of confusion making it so easy for the typical critic to find fault. The typical critic being one who is addicted to destructive criticism with nothing else to offer. Dr. Ingram's work is the first real study to come out since Schilder and Schilder: Prodrome of a Monograph of the Living Cypraeidae. Of course, the Schilder work contains error. It would be almost humanly impossible to be otherwise in such an extensive list, but the Schilder classification seems to be in general use in Japan, Europe, Australia etc.

An extensive work covering the world wide Cypraea by Dr. Ingram would be very welcome.

The Nautilus, Vol. 65, No. 1- July, 1951. This issue is of unusual interest to us because of a number of excellent papers dealing with the Pacific coast.

A New West American Nudibranch Mollusk By G.D. Hanna

The Molluscan names in Renier's " Tavole" By A. Myra Keen

Key to the Nassariidae of the West Coast of North America By Joan Demond. * Note* The mechanics of this key will be of interest to those interested in all keys, but this is a very fine contribution and if I had a separate copy it would be placed in the cabinet drawer containing my west coast Nassariidae

Nomenclatural Notes on the Scaphopoda: The Subgenus Dentale Da Costa By William K. Emerson. Mr. Emerson is to be congratulated for this scholarly paper.

Notes on some Brazilian Planorbidae By H.A. Pilsbry

The Limacidae and Philomycidae of Pittsylvania County, Virginia By Leslie Hubricht.

Arnold Edward Ortmann as revealed by his letters II By Henry van der Schalie. If you have not been reading these papers you will find them of genuine interest.

A Distorsio new to the Florida faina By A.A. Olsson and T.L. McGinty.

Boletin de Historia Natural De La Sociedad " Felipe Poey", Museo Poey, Universidad De La Habana, Cuba.

Among other good pepers on other groups will be found Tributo A La Memoria Del Dr. Carlos De La Torre By Alfredo de la Torre.

Boettger, Von Caesar R.: An African Snail which is rapid;y spreading pest in plantations of hot countries- This is a very complete article in German on the Achatina fulica in Abhandlungen der Braunschweigischen Wissenschaftlichen Gesellschaft, Band III 1951

Chicago Natural History Museum- Report of the Director -- for the year 1950. An excellent illustrated report on the many activities of this great institution.

FIMBRIA vs CORBIS

by Dr. Joshua L. Baily Jr.

My attention has been called to a change in nomenclatorial usage that will have to be made.

In 1761 Bohadsch (de Quebusdem Animalibus Marinis) employed the name *Fimbria* for a Mediterranean nudibranch.

In 1811 Megerle v. Muhlfeld (Ges. Nat. Freu. Berlin, Mag. V. (1) p. 52) employed the same name for a Pelecypod.

In 1817 Cuvier (Regne Anim. v. 3 p. 147) employed the name *Corbis* for the same genus to which Megerle had given the name *Fimbria* in 1811. This synonymy is given by Carpenter (Mazatlan Cat., p. 101, 1857).

Cuvier's name has come into general use for this genus because it was believed that Megerle's older name was inhibited by that given by Bohadsch. But recently the entire book in which Bohadsch published his name has been suppressed by the International Commission on Zoological Nomenclature (Opinion no. 185) and in this opinion it is stipulated that the fact of publication in this work shall not preclude the use of any name so published if later published by another author with a different meaning.

Clearly this action validates *Fimbria* Megerle von Muhlfeld 1811, which name must now be used in place of *Corbis*. But if subsequent examination of the original descriptions of these two generic terms should indicate different generitypes, it would be possible for those who wish to do so to salvage *Corbis* as a subgenus of *Fimbria* or perhaps even as a separate genus. The same argument also applies to the name *Idothea* Schumacher 1817 (Essai Vers. Text., pp. 52, 160) placed in the same synonymy by Carpenter (loc. cit.)

Unfortunately, none of these three works are available at either of the scientific libraries in San Diego, and I have been unable to consult any of them. If any one who has access to them would consult them to see if any types have been designated in the original publication, and submit the data for publication in these minutes, it would be most helpful, and I for one would feel much gratitude.

Joshua L. Baily Jr.

MINUTES OF THE CONCHOLOGICAL CLUB OF SOUTHERN CALIFORNIA
August 5, 1951

By special vote at the July meeting, the August meeting of the Conchological Club was set as a picnic-meeting, to be held at the home of the President, Mrs. John Q. Burch, 4206 Halldale Avenue, Los Angeles 62, at 3 p.m. on Sunday, August 5th.

24 members and guests were present. The reading of the July minutes was dispensed with. It was reported that Mr. Leonard Bessom was doing field work at Magdalena Bay, Mexico, and that Miss Valerie Pearson is spending some time in a sanatorium near Minneapolis.

Notice was read of the death of A. M. Strong, for many years one of our leading members, which took place at Balboa, Calif. on July 14th. A bill for flowers taken to the funeral was ordered paid.

It was moved and seconded that the Club accept with thanks, Mr. Kanakoff's offer to furnish the Club a locker(lockable, and on wheels) to hold the Club's books, etc.

The name of Mrs. Frickered was proposed for membership by Mrs. Burch - no objections have been received.

The Secretary was instructed to write to the Business Office of the County Museum and ask to have our meeting listed on the "Monthly Calendar of Events". The program for the day was then taken up - Dr. Arthur Howard's report on a trip to Ensenada, Lower Cal., last March with the U.S.C. Zoological Club, and a discussion of Brachiopoda by John Burch.

The high points of Mr. Burch's paper, which emphasized to the Club the usefulness of the Hertlein and Grant paper on Czenoic Brachiopoda, were a check for "Glottidia palmeri, Dall" supposed to be longer, narrower and more widely gaping than *G. albida*, Hinds. Only one specimen of *Crania californicus*, Berry, is known. The name *Terebratulina caput-serpentis* frequently used for our local shells belongs on an Italian fossil; ours should be called T. unguicula Cepr. and local references to Terebratulina callinome Dall 1920 should more properly be to T. crossei, Davidson, Dall's similar species being Philippine.

The meeting being adjourned, the members gathered in the yard for a very enjoyable picnic supper.

Respectfully submitted,
Elsie M. Chace, Sec.

MINUTES OF THE CONCHOLOGICAL CLUB OF SOUTHERN CALIFORNIA, September 4, 1951

The meeting was called to order at 7:30 by the President, Mrs. John Q. Burch, in the Educational Division of the Los Angeles County Museum. In the absence of Mrs. E.P. Chace, Mrs. R.N. Mayhew was appointed Secretary Pro Tem. It was moved that the reading of the August 5th minutes be dispensed with pending their publication. The President read a card from the Chaces concerning their vacation plans, and introduced the guests present.

A report was made on collecting a complete set of the minutes of the Conchological Club to be kept at the Museum in a special cabinet. Mrs. Burch reported that they are almost complete from #40 on with a few ommissions in #40 and #48. Mr. Ned Baker offered to donate the published minutes of the association prior to 1940. It was moved and carried to have a list of the missing minutes published and ask that members donate them in order to make the collection complete.

Dr. Wendell O. Gregg reported on a new publication, "Living Cypraeidae of the Western Hemisphere" by William W. Ingram, Price $1.00, as a valuable addition to the library of those interested in these species.

Dr. George Kanakoff made a report on the African Snails (Helix lactae) which have been reported in and around Los Angeles. There are 10 well established colonies located so far, but they are not too widely distributed that they could not be controlled. They seem to be introduced with planting of the Australian Ice Plant.

Mrs. Donna Somner, 661½ W. Florence,Ave., Los Angeles 44 (Thornwall 0622) asked that members submit colorful marine specimens to her husband who has perfected a solution for retaining natural color while preserving them. Arrangements for getting the specimens to the solution or vice-versa can be made by telephoning Mr. Somner.

There being no further business, the Program Chairman, Mr. Carruthers, introduced the first speaker of the evening, Mrs. Ora Willett, whose talk on Foraminifera dealth with the part these tiny mollusks play in locating oil. Mrs. Willett is a paleontologist for Union Oil Company.

The second speaker was Dwight Taylor, who showed slides of his recent trip to Hawaii, where he collected land snails. Dick Felger also reported briefly on his trip to Hawaii, his interest being in Marine mollusks

The meeting was adjourned at 9 p.m.

Respectfully submitted,
Annette F. Mayhew, Pro Tem

Harold R. Robertson, 73 years old, long time resident of South Buffalo, died at his home, 136 Buffum Street, after a long illness. Born at Liverpool, England, he attended school there. He came to the United States as a young man and continued his education at a private school here.

He was married in 1903 to the former Imogene Strickler, daughter of one of South Buffalo's pioneer families. The couple had since resided in South Buffalo.

Mr. Robertson was a member of the Christadelphian Ecclesia. He had been a member of the church of Geindhu street for many years. He was also a member of the microscopical and conchological sections of the Buffalo Society of Natural Sciences. He was a charter member and treasurer of the Malacological union at the time of his death.

Funeral services were held in the Memorial chapel, Loomis, Offers & Loomis, 1820 Seneca Street with Lot Cooke from the Christadelphian church officiating. Burial was in Woodlawn cemetary, Orchard Park.

Mr. Robertson is survived by his wife; two daughters, Mrs. Walter McCausland and Mrs. J. Gordon Petrie; two sons, Clarence Paul and Ralph Alden Robertson; two sisters, Grace and H. Winifred Robertson and four brothers, R. Reed, Ernest, Walter and James Arthur Robertson.

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George P. Kanakoff, Paleontologist at the Los Angeles County Museum, and authority on land mollusks, has had his picture in all of the local papers along with thousands of specimens of _Helix lactea_ Muller. It seems that this species has joined our other common garden pest _H. aspersa_ Muller and is now being found in great numbers at numerous locations about the city. The result has been a wave of publicity and efforts to eradicate them. We have no less than 10 different newspaper clippings about them. Mr. Kanakoff really got in for something when citizens from far and wide started brining snails into the museum or even swamping the phone system by calls.

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Mr. Kanakoff has succeeded in getting a permanent cabinet for the Conchological Club. It is to be on wheels and can be moved into the meetings and afterward rolled away to its place. So for the first time we really have a place to keep the treasures and old records of the club. Oddly enough the club does NOT have a complete file of the Minutes. The following are lacking from the club's file and members having them will do a favor by giving them to the club-- Nos. 1,2,3,4,5,6,7,8,9,10-14,40 and 48 are missing. We have all of the others.

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NEW PUBLICATION

Carcelles, Alberto R. : Catalogo De Los Moluscos Marinos De La Patagonia. This is a very complete work, 100 pages, 6 very clear full page plates, and a colored map. Not only are all of the species listed with range and data but a bibliography of authors on the fauna is given. No price is stated but we will try to get copies for those interested.

MINUTES 114
OCTOBER 1951

CONCHOLOGICAL CLUB OF SOUTHERN CALIFORNIA

Subscription $2.50 per year

We are now meeting the first Tuesday of every month at 7:30 P.M. at the Los Angeles County Museum, Exposition Park, Los Angeles, California. All interested persons are cordially invited.

Please mail all news to your editor,

John Q. Burch,
1584 W. Vernon Ave.,
Los Angeles 62, Calif.
Telephone Ax- 3-5710
Home phone Ax 2-7965

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NEW PUBLICATIONS RECEIVED

The Genus Epitonium in the Western Atlantic Part I by William J. Clench and Ruth D. Turner- Johnsonia Vol.2, No.30.

The work in this paper is excellent as have been the other parts of Johnsonia. The alalysis of the Genus Epitonium is full and clear. We have, of course, been following the same usage in our work on this coast. However, it is a matter of passing comment that both Scala Bruguiere and Scalaria Lamarck are very largely used, Thiele in Handbuch der systematischen Weichtierkunde accepts Scala Brug. and I notice in receiving material particularly from Europe that they are very likely labelled Scala. And a few weeks ago we received some shells from a very prominent conchologist labelled Scalaria, and we have had some correspondence with a few in this connection and they seem disposed to argue a case against the use of Epitonium. We agree with the authors in Johnsonia. It is to be regretted that there is some confusion and that some

(p.13)

FOSSILS AS RELATED TO GEOLOGY

The study of foraminifera and other fossils has come to have much more than an academic interest. These long dead animals are an important factor in the discovery of oil, at least here in California.

I have frequently heard the statement that the oil geologist looks for foraminifera because they are an indication of the presence of oil. That is not entirely true. The real value of fossils to the geologist lies in the key they provide to the reconstruction of the history of the earth and the earth structures which may trap and hold oil.

I will start with a brief sketch of the changing structure of the earth. You have all seen rivers carrying their burdens of earth to the ocean, and the ocean itself tearing down the cliffs and banks which border it. These sediments are carried out into the ocean and deposited layer upon layer on its floor. Gradually the land is leveled and the floor of the ocean built up with a crust of tons upon tons of deposited debris. This tremendous weight changes the balance of the earth's surface. When the pressure becomes great enough the crust is forced to give and begins moving and folding. When the strain on a given point becomes too great, the crust cracks and slips into a less strained position, creating what we call earthquakes. As the pressure becomes greater and greater the folds are pushed higher and farther, and become a series of mountain chains and valleys which in their turn are gradually eroded back into the sea. These events, of course, take many thousands of years to accomplish. According to the latest radio-active methods, the geologic age of the earth is now considered to be five hundred and fifty million years.

As this paper is concerned only with the use of marine fossils, I have not attempted to describe the many other geologic structures such as volcanics, coral reefs, etc.

The earth, then, is a jumbled mass of folded and cracked layers, washed away in some places, still complete in others. Fossils give us the key to the order in which these changes took place. In some sections where large peat bogs and marshes existed over long periods of time, plant spores are now being used successfully to reconstruct the history of that section. Here in our own section which is largely of marine origin, we are more concerned with marine fossils. Foraminifera, mollusks, echinoderms, radiolarians, diatoms, fish-scales, anything which has left its skeleton or imprint helps tell the story to the geologist. Because of their abundance foraminifera have, so far, proven the most useful.

These tiny single-celled animals, resembling mollusks in some respects, have been and still are extremely abundant in the ocean. As many as 10,000 specimens may be found in a half pint sample, and may represent as many as fifty species.

As these and other marine animals die, their remains mingle with and are gradually covered by the sediments which are constantly being washed into the sea and settling on its floor. As living conditions change, the living animals change. Some species die out and new ones appear. The animal

REMAINS ARE DEPOSITED LAYER UPON LAYER, LEAVING THEIR RECORD OF THESE CHANGES, EVEN WHEN THOSE LAYERS HAVE BEEN PUSHED AND FOLDED INTO MOUNTAINS. FORÆMINIFERA OF EOCENE AGE HAVE BEEN FOUND AS HIGH AS 20,000 FEET ON MT. EVEREST.

THE JOB OF THE PALEONTOLOGIST IS TO DETERMINE WHEN THE VARIOUS SPECIES LIVED, WHEN THEY DISAPPEARED, AND WHICH SPECIES APPEARED NEXT. WITH THIS INFORMATION THE GEOLOGIST CONSTRUCTS A PICTURE, NOT ONLY OF THE OLD LAYERS WHICH ARE EXPOSED ON THE SURFACE, BUT OF THE FOLDS AND FAULTS THAT ARE PRESENT UNDER THE SURFACE.

SAMPLES ARE TAKEN BOTH FROM THE SURFACE AND FROM WELL CORES. THE LOCATION OF THE SAMPLE, THE ANGLE OF THE STRUCTURE FROM WHICH THE SAMPLE IS TAKEN, AND THE SEQUENCE OF THE SAMPLES ARE CAREFULLY NOTED. THE AGE OF EACH SAMPLE IS THEN DETERMINED BY MEANS OF THE FOSSILS CONTAINED IN IT. THE SEQUENCE OF THESE AGES TELLS WHETHER A RAISED FOLD (ANTICLINE), A LOWERED FOLD)SYNCLINE), PERHAPS A COMPLETELY OVERTURNED SECTION, OR A FAULT, IS PRESENT. FROM THIS INFORMATION, AND A STUDY OF THE ALTERNATING SANDS THROUGH WHICH OIL CAN MIGRATE AND SOLID ROCK LAYERS THROUGH WHICH IT CANNOT PASS, THE OIL GEOLOGIST DETERMINES THE POSITION OF POSSIBLE OIL TRAPS AND WHERE DRILLING SHOULD BE ATTEMPTED.

THE MILLIONS OF FORAMINIFERA AVAILABLE HAVE ENABLED THE PALEONTOLOGIST TO TRACE THE CHANGING FORMS WITH GREAT DETAIL. IT IS OFTEN POSSIBLE TO PLACE THEIR POSITION IN A SECTION OR WELL WITHIN A FEW FEET. TO THE OIL DRILLER THIS IS VERY IMPORTANT. THE POSSIBLE OIL BEARING FORMATION OR TRAP FOR WHICH HE IS DRILLING HAS BEEN CAREFULLY WORKED OUT BEFOREHAND. IN A KNOWN FIELD THERE IS LITTLE QUESTION AS TO THE OUTCOME, BUT IN UNEXPLORED AND UNDRILLED TERRITORY MANY THINGS MAY HAVE HAPPENED TO THE STRUCTURE WHICH DO NOT SHOW ON THE SURFACE. UNEXPOSED FAULTS MAY BE PRESENT OR THE POSSIBLE OIL-BEARING SAND WHICH IS THE OBJECTIVE MAY HAVE PINCHED OUT A LITTLE DISTANCE AWAY. STUDY OF THE CORES TAKEN DURING DRILLING WILL TELL THE PALEONTOLOGIST WHETHER THE DRILLER IS HITTING THE EXPECTED FORMATIONS AT THE EXPECTED PLACES, WHETHER HE SHOULD GO ANOTHER HUNDRED FEET OR SO TO HIS OBJECTIVE, OR WHETHER HE HAS PASSED IT AND HAD BETTER STOP WASTING MONEY ON FURTHER DRILLING.

IN THE ABSENCE OF FORAMINIFERA SUCH SATISFACTORY RESULTS ARE NOT ALWAYS POSSIBLE. THE PALEONTOLOGIST THEN TURNS TO MOLLUSKS OR WHATEVER FOSSILS HE MAY FIND. STUDY OF THESE OTHER FOSSILS HAS BEEN HAMPERED BY THEIR RELATIVE SCARCITY. IT MAY BE POSSIBLE TO SAY THAT A CERTAIN SPECIMEN IS RESTRICTED TO A CERTAIN AGE, BUT THAT AGE MAY BE A THOUSAND OR FIVE THOUSAND FEET THICK AND THERE IS LITTLE WAY OF KNOWING WHETHER IT LIVED AT THE BEGINNING OR END OF THE AGE IN QUESTION. TO A DRILLER THE KNOWLEDGE OF WHETHER HE IS JUST ENTERING OR LEAVING A FORMATION CAN BE A MATTER OF MANY THOUSANDS OF DOLLARS.

MORE DETAILED INFORMATION ON THE VARIATION AND EVOLUTIONARY CHANGES OF MOLLUSKS IS VERY DESIRABLE. FINDING THESE FOSSILS AND STUDYING THEIR RELATIONSHIPS AND PLACE IN TIME IS A FASCINATING SUBJECT. SURELY EXPLORATION OF THE PAST IS AS IMPORTANT TO US AS EXPLORATION OF THE FUTURE. FOSSILS MAY NOT BE AS BEAUTIFUL AS LIVING SHELLS BUT THEY HAVE A FAR MORE INTERESTING STORY TO TELL US IF WE WILL TAKE THE TROUBLE TO READ IT.

SHELL COLLECTORS! DO NOT IGNORE THE UGLY FOSSIL!

MRS. ORA WILLETT
PALEONTOLOGIST, UNION OIL COMPANY

THE PARASITES OF MOLLUSKS

by
Dr. Howard Hill, Curator
Los Angeles Museum

Whether or not mollusks have parasites might seem to be a trivial matter to most people. Such is not the case, however, for there are certain molluscan parasites that play an important role in the spread of a number of diseases that affect man and domestic animals, often with fatal results. These will be discussed at some length in this paper.

A parasite is an organism that lives on or within another animal, at the expense of its host. In one way or another, it is usually harmful to the host. No vertebrates are known to be parasites of mollusks. On the other hand, there are many kinds of invertebrates that plague mollusks and utilize them as hosts. Among these may be mentioned the bacteria and protozoans, which are sometimes harmful to their hosts. Edible bivalves frequently harbor bacteria that render them unfit to for food. Clams and oysters may become contaminated with typhoid bacteria at certain seasons of the year and produce gastric disturbances in man, if eaten at such periods.

Bivalves are sometimes smothered by an accumulation of animal growth over their shells--being encrusted by sponges, hydroids, bryozoans, barnacles, and tube-building worms. Pecten shells become riddled by the borings of the sulphur sponge (Cliona sulphurea) and the shells are so weakened, in many cases, that they crumble away. Small crustaceans live within the shell cavities of many marine mollusks but do very little damage to their hosts.

Worms of many different kinds are parasitic on and in mollusks. Leeches prey upon marine and fresh-water forms and round-worms or nematodes are common in the digestive tracts of mollusks in general. The trematodes or flukes, as they are sometimes called, are the most conspicuous of the worm parasites. They usually have a complicated life-history in which mollusks serve as an intermediate host.

Fresh-water univalves are highly parasitized by larval trematodes that encyst in the liver. The final host is the vertebrate which feeds on an infected snail. The parasites grow to maturity in the final host and produce eggs which hatch out in water. The young parasites are called "miracidia" and for a time are free-swimming. They seek a snail host and upon finding a suitable one, bore into the liver. Frequently, a second intermediate host, such as a crustacean or a fish, is involved in the life cycle of parasites. Advanced larval forms--called "cercariae" escape from the snail's liver and penetrate the body or skin of the secondary host, where they remain until eaten by the final host.

Among the life histories of trematodes that have been worked out, the following may be of interest. In Michigan, Goniobasis livescens is the intermediate host of a trematode that becomes adult in the Map Turtle. This snail is also the first intermediate host of another species of trematode that lives later in an amphipod crustacean and finally completes its life history in a Sunfish. Species of Helisoma, the rams-horn snails, are hosts to the blood fluke of the Painted Turtle. They are also the first intermediate hosts of another fluke which lives later in an earthworm and finally in the intestine of a fish. Campeloma decisum harbors a trematode that becomes adult in birds and mammals. Pomatiopsis lapidaria is the first host of a trematode that later embeds in the skin of frogs and tadpoles and becomes adult in the intestine of minks. Unios harbor trematodes that develop into adult worms in fishes. Sphaerium is the host of a fluke that lives later in crayfish and finally in the Black Bass.

The four types of trematodes that are of greatest importance to man are the blood flukes, lung flukes, liver flukes, and intestinal flukes. All require fresh-water univalves as an intermediate host.

Blood Flukes

Bilharziasis or Schistosomiasis, as it is often called, is a disease of the blood caused by flukes of the genus Schistosoma. The disease is a very ancient one and was first discovered in Egypt. It is prevalent in other parts of Africa, Japan, China, Brazil, Dutch Guiana, Venezuela, and has been reported from Portugal and several points in the West Indies. The mollusks that serve as intermediate hosts are species of Planorbis, Bulinus and Physopsis in Africa; Planorbis in Portugal and northern South America; and Katayama and Oncomelania in east Asia. Human infection comes about by penetration of the skin by the Schistosoma cercaria which have escaped from their snail hosts. Parasitologists consider blood flukes as the most dangerous trematodes parasitic in man.

Lung Flukes

Human lung flukes are widely distributed in the East Indies, Asia and northern South America. They occur to some extent in the Philippines, Africa, and North America. In North America, the adult parasites are limited to the dog, cat, pig and wild animals such as mink, mountain lion, fox, marten, badger and weasel. Human cases are most common in Asia and the East Indies. Two intermediate hosts are required for the lung fluke. The first intermediate host, in Asia, is a fresh-water snail of the genus Melania (now called Thiara) while in North America, Pomatiopsis lapidaria is the first host. The second host is always a crayfish or other fresh-water crustacean and the final host man and domestic or wild mammals. Infection is acquired from drinking water containing eggs or by eating raw or partially cooked crustaceans. The trematode Paragonimus westermanni is the species responsible for the lung fluke disease.

Liver Flukes

Trematodes of two different families cause liver infection in man. Fasciolaria hepatica is a cosmopolitan species which is the cause of "liver rot" in sheep. It is frequently found in cattle and occasionally in man. Mollusks of the genus Galba, Lymnaea, and Fossaria act as intermediate hosts. A larger, rarer liver fluke attacks cattle, sheep and goats in North America, its intermediate host being the fresh-water snail Pseudosuccinea columella.

Another trematode, Clonorchis sinensis, is the liver fluke of man. Its distribution is confined to the Orient. The snail Parafossarulus striatulus is the first host, and the fish the second host. Human infection is brought on by eating raw fish which harbor the parasite.

Intestinal Flukes

Species of Planorbis and Segmentina are the intermediate hosts of the largest trematode parasitic in man. The species is Fasciolopsis bushi of the East Indies and the Orient. This fluke lives, in its adult state, in the stomach of man and pig. Infection occurs from eating water-nuts and water plants upon which the snails feed. Eggs of the parasites cling to the plants and become a source of infection should the plants be eaten before being thoroughly cleaned.

Among the land mollusks which are the hosts to larval flukes are the following: Gastrodonta, with the final host of the parasites being the shrew; Polygyra, with the flukes becoming adult in the opossum; and in Porto Rico Subulina Octona harbors trematodes that become adult in herons.

Comparatively little study has been made of the parasites of marine univalves. It is known that in Europe and along the New England coast Littorinas are hosts to flukes that develop later in crabs and later in gulls. Olivella biplicata is the first intermediate host of a species which later penetrates sand crabs and finally becomes adult in the Godwit and Willet, common Western shore birds. Dr. Walter Martin of the University of Southern California has recently worked out the life history of a trematode from Cerithidea californica. He found that the Killifish was the second host and the Herring Gull the final host.

It is quite evident that the study of parasitism in mollusks is still in its infancy. Parasitologists are continuing their investigations and gathering additional data on this subject. As a result, we may expect to hear about the discovery of many new species of molluscan parasites, new information on host relationships, and further knowledge ralating to the life history of the parasites involved.

A Collection of Mollusks from Washington Bay, Kuiu Island,

Southeastern Alaska

by
Walter J. Eyerdam

(September 1, 1951)

During the past 35 years I have worked 18 seasons in the whaling and herring fisheries in Alaska. In 1917 I came north on a Norwegian whaler to work as a cooper at Port Armstrong on Baranof Island for two seasons. It was there that I got my first real interest in collecting shells and since that time my collection of Alaska shells has grown until it is now the largest private one.

In 1947 I worked again in S.E. Alaska for the first time since 1919. Here in Washington Bay I spent four seasons of 1947 - 1949 - 1950 and 1951. In spare time as usual extensive collections of the Mollusca and plants including the spermatophytes and the cryptogams were made.

Washington Bay is about 2½ square jiles in area and is severl hundred feet deep. Mountains are on three sides covered with dense forest of western hemlock and Sitka spruce with Alaska Yellow cedar and balck hemlock on the ridges and red alder along water courses, especially where avalanches have carried down the original spruce - hemlock association. Most of the shores are very rocky and abrupt. At one end of the bay is a tidal flat and a beach meadow. The flat abounds in butter clams and cockles and at extreme low tide there are horse clams. Three species of Thais are abundant on the rocks and the usual species of chitons are common, only two land snails occur and one common slug.

Looking out from the herring plant right across Chatham Strait about 12 miles is snow capped Mt. Ada, the highest mountain on Baranof. Kuiu Island which is very rugged and uninhabited except during the Summer, is the home of many animals. Black bears are common and some of them become so bold around the herring plant that nearly every year it is necessary to kill at least one of them, especially when they break into houses or come into the plant to steal fish. As many as 22 bears have been seen at one time around the camp. One of the larges races of timber wolves lives on Kuiu Island where they keep natures perfect balance with the extensive deer population. Douglas squirrels also furnish food for the martens and mink and the land otter catches Dolly Varden trout and salmon for his food. There are about a dozen species of land birds in the forest, including bald eagle, raven, varied thrush, spruce grouse, mountain ptarmigan, song sparrow, yellow warbler, chickadee, red poll western wren and rufous hummingbird. There are a few rarer species of birds that I have not seen.

The waters of Washington Bay teem with herring, salmon and halibut. This fish plant has been running every season for over 30 years and the fish supply is still about the same average.

Our maintainance man of 1950 and 1951, an enthusiastic sports fisherman, often caught with rod and reel up to six to ten king salmon in an evening after work. One of them weighed over 64 pounds. He also caught with a single hook and line 36 fine halibuts in 1½ hours in one evening.

Thousands of barrels of herring are also caught in Washington Bay and several king salmon trolling boats spend half of the season catching salmon in and just outside of the bay.

The following list of shells were taken in 1947 - 1949 - 1950 - 1951. About 90 species were found during the first season.

LAND SHELLS

1. *Haplotrema sportella* (Lea) . . . Not common
2. *Vespericola Columbiana* (Lea) *var. pilosa* . . . Not common
3. *Deroceras* sp. . . . Common large slug

PELECYPODA

Family *Nuculidae:*

4. *Nucula tenuis* (Montagu) . . . 3 valves

Family *Ledidae:*

5. *Leda minuta* (Fabricius) . . . Several valves

Family *Pectinidae:*

6. *Hinnites giganteus* (Gray)
7. *Pecten hericeus* (Gould) . . . Several young valves
8. *Pecten hindsii* navarchus (Dall) . . . 2 specimens
9. *Pecten Randolphi* (Dall) . . . Seve dredged . . . Several
10. *Pecten alaskana* (Dall) . . . Several

Family Anomiidae:
11. Pododesmus macrochisma (Deshayes) . . . common on rocks

Family Mytilidae:
12. Mytilus californianus (Conrad) . . . common on outer sea coast
13. Mytilus eculis (Linn.) . . . very common
14. Modiolus modiolus (Linn.) . . . not common
15. Musculus substriatus (Gray) on Laminaria fronds
16. Modiolaria vernicosus (Middendorff) on Laminaria
17. Modiolaria laevigata (Gould) in byssal nests common under large stones at low tide
18. Crenella decussata (Montagu) one valve - dredged

Family Pandoridae:
19. Kennerlia filosa (Carpenter) dredged - one valve

Family Lyonsiidae:
20. Entodesma saxicola (Baird) . . . rare

Family Cuspidariidae:
21. Cuspidaria pectinata (Carpenter) dredged . . . one sp.

Family Astartidae:
22. Astarti Rollandi (Bernardi) dredged . . . several valves
23. Astarti Esquimalti (Baird) " . . . 2 sp.

Family Carditade:
24. Venericardia crebricostata (Krause) . . . one sp.
25. Miodontiscus prolongatus (Carpenter) dredged several sp.

Family Thyasiridae:
26. Thyasira gouldii (Philippi) dredged several sp.
27. Axinopsis viridis (Dall) " one sp.

Family Lucinidae:
28. Parvilucina tenuisculpta (Capr. dredged several sp.

Family Leptonidae:
29. Kellia Laperousi (Deshayes) under rocks not common
30. Rochefortia sp. " " one sp.

Family Cardiidae:
31. Clinocardium corbis (Martyn) common under mud flats
32. Clinocardium ciliatum (Fabricius) dredged several
33. Clinocardium Californiense (Deshayes) " several
34. Clinocardium fucanum (Dall) " 2 sp.
35. Serripes groenlandicus (Gmelin) "
36. Serripes Laperousii (Deshayes) "

Family Veneridae:
37. Saxidomus giganteus (Deshayes) . . . common butter clams
38. Saxidomus giganteus var. brevis (Dall) . . . not common
39. Venerupis staminea (Conrad) . . . common rock clam
40. Venerupis staminea ordella (Carpenter) . . . in hard ground
41. Psephidia Lordi (Baird) dredged one sp.

Family Tellenidae:
42. Macoma inquinata var. arnheimi (Dall) . . . 2 sp.
43. Macoma balthica (Linne) mud flats not common
44. Macoma alaskana (Dall) dredged 2 sp.
45. Macoma brota lipara (Dall) "
46. Macoma irus (Hanley) " 1 sp.
47. Macoma nasuta (Conrad) 1 sp.
48. Macoma yoldiformis (Carpenter) " several

Family Mactridae:
49. Mactra alaskana (Dall) outer sandy coast
- Spisula
50. Schizothaerus nuttallii (Conrad) on mud flats
51. Schizothaerus nuttallii var. capax (Dall) on mud flats

Family Myacidae:

52. Mya truneata	(Linn)	. . .	occasional on mud flats
53. Mya truneata uddevallensis	(Forbes)	. . .	I valva
54. Mya japonica	(Jay)	. . .	a few juvenile shells dredged
55. Cryptomya californica	(Conrad)	. . .	single valves

Family Saxicavidae:

56. Saxicava arctica	(Linn)	. . .	under rocks
57. Saxicava pholadis	(Linn)	. . .	on floating logs

Family Teredidae:

58. Bankia setacea	(Tryon)	. . .	in sunken logs and piling

NUDIBRANCHIATA

identified by MacFarland:

59. Anisodoris nobilis 60. Onchidoris fusca 61. Onchidoris hystricina 62. Onchidoris varianus

Family Siphonariidae:

63. Siphonaria thersites	(Carpenter)	. . .	common on Fucus

Family Onchidiidae:

64. Arctonchis borealis	(Dall)	. . .	common on Fucus

GASTROPODA

Family Acteocinidae:

65. Acteocina eximia	(Baird)	dredged	one specimen

Family Turritidae:

66. Lora fidieula	(Gould)	"	

Family Cancellariidae:

67. Cancellaria modesta	(Carpenter)	"	

Family Chrysodomidae:

68. Searlesia dira	(Keeve)	. . .	common under stones

Family Buccinidae:

69. Buccinum Baeri	(Middendorff)	. . .	under rocks
70. Buccinum Morchianum	(Fischer)	. . .	under rocks
71. Voluthapra ampullacea	(Middendorff)	. . .	not common

Family Collumbellidae:

72. Columbella gausapata	(Gould)		
73. Nitidella Gouldii	(Carpenter)	. . .	one colony
74. Amphissa Columbiana	(Dall)	. . .	common
75. Amphissa versicolor	(Dall)	. . .	var.

Family Marginellidae:

76. Merovia Pyriformis	(Carpenter)	. . .	I specimen

Family Muricidae:

77. Purpura foliata	(Martyn)	. . .	I specimen
78. Ocinebra lurida	(Middendorff)	. . .	rare
79. Ocinebra interfossa	(Carpenter)	. . .	not common
80. Trophon beringi	(Dall)	. . .	rare
81. Trophon pacifica	(Dall)	. . .	under stones
82. Trophon multicostata	(Eschscholtz)	. . .	under stones
83. Trophon Stuarti	(E. A. Smith)	. . .	rare
84. Trophon tenuisculpta	(Carpenter)	. . .	rare
85. Trophon lasia	(Dall)	. . .	not common
86. Trophon orpheus	(Gould)	. . .	rare
87. Thais lamellosa	(Gmelin)	. . .	very common
88. Thais lamellosa hormica	(Dall)	. . .	common
89. Thais lamellosa Sitkana	(Dall)	. . .	common
90. Thais canaliculata	(Duclos)	. . .	common
91. Thais lima	(Martyn)	. . .	not common
92. Thais emarginata	(Deshayes)	. . .	not common
93. Thais emarginata var. projecta	(Dall)	. . .	common

Family Melonellidae:

94. Balcis columbiana	(Bartsch)	. . .	rare

Family Pyramidellidae:

95. Onepota alaskensis	(Dall)	. . .	I specimen
96. Onepota Eschscholtzii	(D. E. B.)	dredged	2 specimens

Family Pyramidellidae (cont).:

97.	Onepota sp.		. . .	1 specimen
98.	Odostomia sp.		Dredged	Several

Family Cymatiidae:

99.	Argobuccinum oregonensis	(Redfield)		

Family Cerithiopsidae:

100.	Cerithiopsis Fraseri	(Bartsch)	. . .	on bread sponges
101.	Bittium Vancouverensis	(Dall & Bartsch)	Dredged	

Family Trichotropidae:

102	Trichotropis cancellata	(Hinds)	. . .	Parasitic on and under stones
103.	Serpula vermicularis			

Family Littorinidae:

104.	Littorina sitkana	(Philippi)	. . .	Very common
105.	Littorina rudis	(Donovan)	. . .	Very common

Family Lacunidae:

106.	Lacuna solidula	(Loven)	. . .	on Fucus
107.	Lacuna carinata	(Gould)	. . .	on Laminaria
108.	Lacuna divaricata	(Fabricius)	. . .	on stones

Family Litiopidae:

109.	Barleeia Sanjuanensis	(Bartsch)	. . .	under stones - rare

Family Rissoidae:

110.	Alvania alaskana	(Dall)	. . .	on nullipores - rare

Family Crepidulidae:

111.	Crepidula nivea	(Gould)		
112.	Crepidula nivea	(Gould) var.	. . .	on the operculae of Argobuccinum Oregonense
113.	Crepidula nummarius	(Gould)	. . .	on stones
114.	Crepidula adunca	(Sowerby)	. . .	on stones

Family Naticidae:

115.	Natica clausa	(Broderip & Sowerby)	. . .	in clam beds
116.	Natica russa	(Gould)	Dredged	
117.	Natica alentica	(Dall)	. . .	rare

Family Calyptraeidae:

118.	Calyptraea fastigiata	(Gould)	. . .	rare

Family Lamellariidae:

119.	Velutina laevigata	(L.) Mueller	. . .	rare

Family Lepididae:

120.	Lepeta concentrica	(Middendorff)	. . .	under stones
121.	Lepeta caecoides	(Carpenter)	. . .	" "

Family Acmaeidae:

122.	Acmaea mitra	(Eschscholtz)	. . .	low tide mark
123.	Acmaea cassis	(Eschscholtz)	. . .	between tides
124.	Acmaea cassis - pelta	(Eschscholtz)	. . .	between tides
125.	Acmaea cassis olympica	(Dall)	. . .	on mussels & barnacles
126.	Acmaea Scutum	(Eschscholtz)	. . .	near high water
127.	Acmaea Scutum pintadina	(Gould)	. . .	near high water
128.	Acmaea persona	(Eschscholtz)	. . .	on granita rocks
129.	Acmaea rosea	(Dall)	Dredged	rare
130.	Acmaea digitalis	(Eschscholtz)	. . .	high water on rocks
131.	Acmaea fenestrata	(Reeve)	. . .	on granite rocks
132.	Acmaea fenestrata cribraria			

Family Trochiidae:

133.	Promartynia pulligo	(Martyn)	. . .	rare
134.	Calliostoma costatum	(Martyn)	. . .	not common
135.	Cidarina cidaris	(A. Adams)	. . .	1 specimen - dredged
136.	Margarites pupilla	(Gould)	. . .	not common
137.	Margarites succineta	(Carpenter)	. . .	under stones - low tide
138.	Margarites helicinus	(Phipps)	. . .	on algae
139.	Margarites marginatus	(Dall)	. . .	under stones
140.	Margarites cinerea	(Couthony)	. . .	rare

Family Haliotidae:

141.	Haliotis kamtschatkana	(Jonas)	. . .	2 specimen

Family *Fissurellidae*:

142. *Diodora aspera* (Eschscholtz) . . . Small var. - common
143. *Puncturella galeata* (Gould) Dredged
144. *Puncturella multistriata* (Dall) "
145. *Puncturella cucullata* (Gould) "

AMPHINEURA

Family *Lepidopleuridae*:

146. *Lepidopleurus sp.* . . . Under rocks

Family *Lepidochitonidae*:

147. *Lepidochitona lineata* (Wood)
148. *Lepidochitona submarmorea* (Middendorff)
149. *Lepidochitona alba* (Linn)
150. *Lepidochitona Raymondi* (Pilsby)
151. *Schizoplax Brandtii* (Middendorff)

Family *Ischnochitonidae*:

152. *Ischnochiton Mertensii* (Middendorff)

Family *Mopaliidae*:

153. *Mopalia ciliata* (Sowerby)
154. *Mopalia ciliata Wassnessenskii* (Middendorff)
155. *Mopalia muscosa lignosa* (Gould)
156. *Mopalia muscosa Swani* (Carpenter)
157. *Mopalia muscosa laevion* (Pilsbry)
158. *Mopalia muscosa muscosa* (Gould)
159. *Placiphorella rufa* (Berry) 1917

One specimen taken from an old dock piling.
This is the second time it has been found since George Willett found it at type locality, Forrester Island which is in this area of S. E. Alaska.

Family *Acanthochitonidae*:

160. *Katharina tunicata* (Wood) . . . Common

Family *Cryptochitonidae*:

161. *Cryptochiton Stelleri* (Middendorff) . . . Rare

CEPHALOPODA

162. *Octopus Hongkongensis* - a couple of small ones
163. *Loligo sp.* - several taken from salmon trap

BRACHIOPODA

164. *Terebratalia transversa* . . . Under rocks
165. *Terebratulina unguicula* (Carpenter) Dredged
166. *Hemithras psittacea* . . . Under rocks

MINUTES OF THE CONCHOLOGICAL CLUB OF SO. CALIF., OCTOBER 2ND, 1951.

The October meeting of the C.C.S.C. was held on Oct. 2nd at the usual place. President Mrs. John Q. Burch called the meeting to order at 7:30 P.M. The minutes of the Sept. meeting were approved as printed. A drawing was held for the two door prizes - won by Mrs. Hjorth and Miss Falconer. Best wishes were extended to Dr. A.B. Howard on his recent birthday, and members heard with regret that our long time member, Mr. Morris Schick, is now in Broadwood Nursing or Rest Home. (The Secretary promptly sent him a note of good wishes - it has not been returned so apparently the address was adequate.)

Dr. Gregg, as chairman of the Nomenclature Committee, called attention to a book "The Mollusks of the Niagara Frontier Region" by Mrs. Imogene Robertson & Clifford Blakeslee, noting that it follows the new classification, and a new number of the Cuban Malacological Journal in which 6 new species of land shells are described by Robert Drake.

Under New Business - It was moved, 2nded and carried that the Pres. and Sec. be authorized to purchase from the estate of A.M. Strong a copy of the Hanna & Strong paper on West Coast Cones and the 10 parts, by Leo Hertlein and A.M. Strong on Eastern Pacific Expeditions of the New York Zoological Society; Mollusks from the West Coast of Mexico and Central America, for the Club Library.

The main paper of the evening was given by Dr. John Carlisle of the Calif. Fish and Game Comm. Dr. Carlisle has done much work on our local Haliotidae - primarily of course on the commercially important H. rufescens, and his preview of some of his experiments and conclusions was very interesting. Some of his "background" statements were that the first known reference to Haliotis is by Aristotle in the 4th century B.C. 75 species are known and they extend back to the Silurian fossils. In 1911 Conservation Laws and a size limit were first established in California. An 8 inch H. rufescens is believed to be 12 years old and they start spawning at 4 to 5 inches in size.

An informal discussion followed Dr. Carlisle's paper.

After this Mr. Caruthers gave a brief talk on California Tellens. One statement which I do not recall seeing in print, so wish to record, is that while most Tellens are from shallow water, T. carpenteri goes down to 150 fms.

Adjournment after the usual manner.

Respectfully submitted.

Elsie M. Chace, Sec.

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CONCHOLOGICAL CLUB OF SOUTHERN CALIFORNIA

Place- Los Angeles County Museum Ground Floor, S.E.Entrance

Time- Nov.6,1951 6:30 Potluck Supper 7:30 Program
Coffee and desert will be provided.Everyone please
bring a covered dish hot or cold.

Mrs. John Q. Burch Phone Ax 2-7965 or Ax 3-5710

New Publications Received (con) (from p 1)

some authors continue to use the other nomenclature. The issue is simply that if *Scala* Bruguiere is held to be a valid post-Linnean name and not merely a copy of Klein, a pre-Linnean author, then *Scala* 1792 is obviously earlier than *Epitonium* Roding 1798. Why Lamarck's *Scalaria* should be so extensively in use is more of a puzzle.

The Shell Book by Julia Ellen Rogers, 1951 Ed. This is an excellent reprint of the old classic with an appendix by Dr. Harald A. Rehder bringing the nomenclature to date. The book is now available for immediate delivery. $6.50

Bulletin of the Southern California Academy of Sciences-May-Aug.,1951 There are three papers in this issue of interest.

Descriptions of Two New Species of Marine Pelecypods from West Mexico by Leo George Hertlein- *Ostrea corteziensis* and *Tagelus bourgeoisae* - Descriptions of Three New Species of Marine Gastropods from West Mexico and Guatemala by Leo George Hertlein and A.M. Strong- *Latirus socorroensis*, *Aspella bakeri*, and *Marginella woodbridgei*. An Unusual Habitat for Zirfaea pilsbryi by William K. Emerson. The last paper is an account of *Zirfaea* burrowing in a log.

Description of a New Pelecypod of the Genus Anadara from the Gulf of Mexico by Leo George Hertlein. The Texas Journal of Science Sept. 30,1951. The species described is *Anadara baughmani* .

Specimen shells from the type lot of this new species may be had from John Q. Burch- price $2.00.

Revista de la Sociedad Malacologica " Carlos De La Torre" Vol.8, Num.1, Sept.,1951. The illustrations and format of this periodical are always of first quality. The following papers are in this issue: Nuevos Cerionidos De Cuba by C.G. Aguayo and M.L. Jaume; Nuevos Cerionidos De La Costa Norte De Matanzas by Carlos Guillermo Aguayo and Alfredo de la Torre;Nuevos Moluscos Del Genero Liguus by Mario Sanchez Roig; Three New Species of Coelostemma from Southeastern Chihuahua by Robert J. Drake; A New Species of Polygyra from West Texas by Robert J. Drake; Notas Sobre El Operculo De Los Generos Limadora y Parachondrodes by Zeida Rodriguez Pino.

California Fish and Game, Vol. 37, No.4, October,1951 contains The Fresh-Water Mussels of California by Paul Bonnot

Fisheries Newsletter, Australia, Sept. 1951. In glancing through one article is of passing interest " 80,000 Scallops Moved to Depopulated Bed" . Quite an article on the scallop industry of Australia. Note- It is an interesting thing that while this is an industry of commercial importance, it is still very difficult to get any of the shells.

A New Chiton from South Africa by H.J. Koch- Proceedings of the Malacological Society of London. - *Notoplax umgaziana*-

Non Marine Shells from Borneo- by Fritz Haas . Fieldiana Vol.31, No.52, Sept. 5,1951.

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NOV. 1951

CONCHOLOGICAL CLUB OF SOUTHERN CALIFORNIA

Subscription $2.50 per year

We are now meeting the first Tuesday of every month at the Los Angeles County Museum, Exposition Park, Los Angeles, Calif. at 7:30 P.M. All interested persons are cordially welcome.

Please mail all news to your editor, John Q. Burch,
1584 W. Vernon Ave.,
Los Angeles 62, Calif.
Phone Ax 3-5710

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We have a recent case of what seems to my eyes to be another unfortunate case of duplicate descriptions of the same species. Anadara baughmani Hertlein was described in the Texas Journal of Science, 1951, No. 3, Sept. 30, 1951. I have before me the latest issue of the Revista de la Sociedad Malacologica " Carlos De La Torre" The first paper is an excellent work by Harald A. Rehder and R. Tucker Abbott " Some New and Interesting Mollusks from the Deeper Waters offthe Gulf of Mexico". In this paper there is a description of Anadara springeri . Of course, I have not seen a type of the latter but the figure seems to be very clear and there is no doubt in my wind but that Anadara springeri , published Nov. 12 , must fall into the synonymy of Anadara baughmani, published Sept. 30.

A number of other new species are described in the same paper and a number of them are of unusual interest. Siphovasum is described as a new subgenus of Vasum.

Another paper is " Some New Cerionids from Cuba" by Wm. J. Clench and Carlos Guillermo Aguayo. " Paquiodontos Nuevos Del Cretacico Superior de Cuba" Por F.K.G. Mullerried. Humboldtiana taylori, nee species, from North Coahuila" by Robert J. Drake

USE OF MOLLUSKS BY THE HOOPA AND KLAMATHS

Mollusks played a rather important role in the life of the early Indians of the Northern California area. Large quantities were gathered for food purposes, as indicated by the large shell mounds that remain at the early compsites along the coastal bays and rivers. However, the Indians of the Inner Coast Ranges did not have the opportunity, due to distance from the sea, to use the mollusks for food. Instead, certain species were used for ornaments and monies. These shells were prepared and sewn onto the ceremonial garb. These were used as an indication of wealth. The credit rating of one of these early Indians could be told at a glance, without checking on a bank account. The shells of certain species were traded for, and gathered from generation to generation, always being retained in a family group. At present, there still are in existance family fortunes, that are brought out for display only on ancient ceremonial dances. Shells did not constitute the entire fortune. Otter and mink pelts, white deer skins, woodpecker scalps and various other furs and feathers were all worked into the costumes. However the most valuable items were large, carved and decorated specimens of the Tusk Shell. The age of these items is lost in legend. All that the writer could learn was that the shells came from a long, long way and were probably gathered at the same time and manner that the large sacred obsidian leaf knives were obtained.

Five species of mollusks have been identified. These were either used as worked fragments or decorated. Abalone shells were cut into various shapes and sizes. The area of the muscle scar was separated from the rest of the shell. Clam shells were sorted to size, then ground down to thin flake or disc. Tusk shells were carved and stained. To better understand the actual placement of the shells, the writer has attempted to describe the garments and location of the shells.

Figure 1-A represents a ceremonial skirt. The skirt, a wrap-around of white buckskin, was in some cases completely covered with shell discs. Some had the shells arranged in horizontal rows, while in others the vertical stripe pattern was used. In most cases the apron was covered and the lower portion of the skirt, the rest having various quill work or other decorations. When a girl danced or moved about, the flat ticking of the shells could be heard for quite a distance. There were two basic species used for the shell work. Red Abalone *Haliotis rufescens* and halves of the *Semele rupicola* were the most common identified. On two skirts, the girdle plates were made from the muscle scar of the Green Abalone *Haliotis fulgens*, and on several aprons shells of the *Olivela biplicata* formed single rows. The *Semele* was considered the more valuable shell and was more sought after, and was also probably a bit more difficult to pick up in barter. Of the four species, the Red Abalone was the easiest to secure, with the Olive a close second. Both are found on the immediate coast. The Green Abalone and the Semele probably were traded for with more southern tribes. (The writer has found the *H. fulgens* north to Point Arrena).

A basket hat was worn by the women, and was made from native grasses, fern, and roots. Figure 1-B. Specific tribal designs were woven into these hats. Radiating out from the central knot, carved and ornamented *Dentalium vallicolens* were sewn to the crown in a spoke like manner. At first glance one would not recognize these shells, so covered with carvings and scalps of the Pileated Woodpecker *Ceophoeus*

Pileatus are they. Two to seven of these tubes may be found on a hat. They are the choicest and most valuable of the shell monies, and are reported to have been traded from the area north of the present day Puget Sound. They range in length from 55 to 65 mm, and are completely covered with fine carvings. These carvings have been filled in with soot (black) and dried blood (brown), to bring out the details. Some have a band of the woodpecker feathers, and all have the scarlet feathers protruding from each end.

Strings of *Dentaliums* are in two classes. Small uncarved or slightly carved specimens are strung in multistrand necklaces. These are for ornamentation only. Fig. 2-A. These are generally 20 to 35 mm in length. Shells that range from 35 to 45mm in length are probably considered small change and are slightly carved, generally with a double spiral. Shells from 45 to 55 mm are more elaborately carved anc constitute the general currency. A few of the designs are drawn in Fig. 2-B. How the fine lines were engraved is unknown. The work is as fine as any of the examples of Walrus ivory carving that reaches us from the far north. Due to the age of the specimens and the great value attached, these shells may have been collected in the far north, engraved there and finally reached their present area by trade.

It would be interesting to note if other tribes used the same species or allied species for the same purposes along the coast. It may be that a regular channel of barter was in force along the coast long prior to the time of the white men.

Robert R. Talmadge, Willow Creek

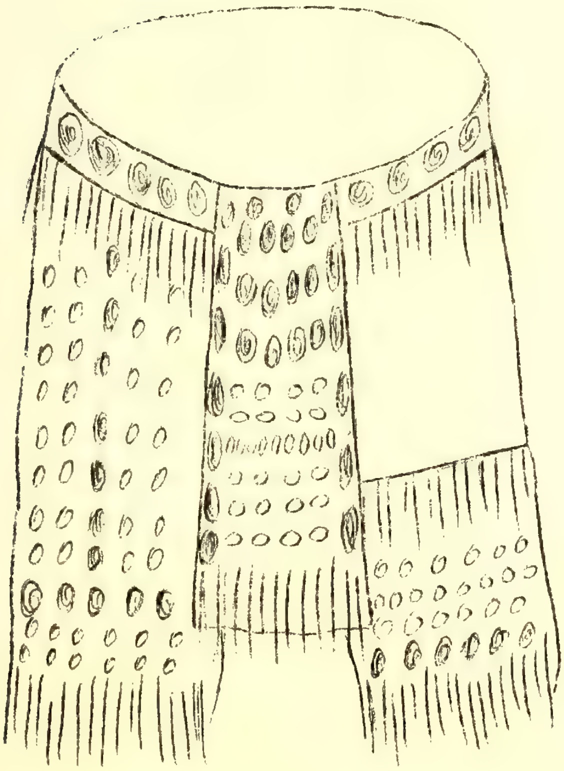


fig. 1-a

Composite Skirt

Dark Area is Abalone; Light Disks are Semele

Left - A Full Shell Skirt, rare

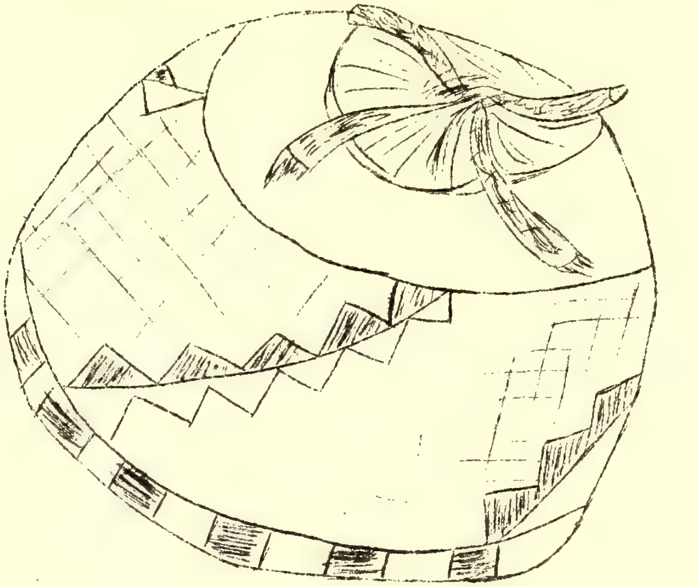
Right - A Partial Shell Skirt, usual

Some have single row of olives on apron.

fig. 1-b

BASKET HAT

DENTALIUMS ON CROWN



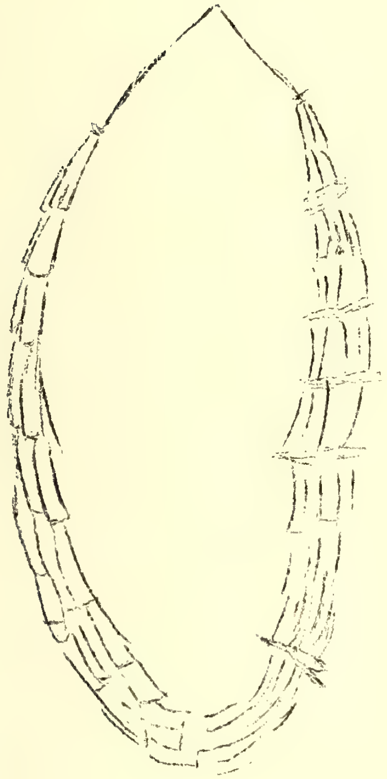


fig. 2-a

COMPOSITE NECKLACE

LEFT STRANDS - DENTALIUMS

RIGHT STRANDS - DENTALIUMS WITH SEMELE SPACERS

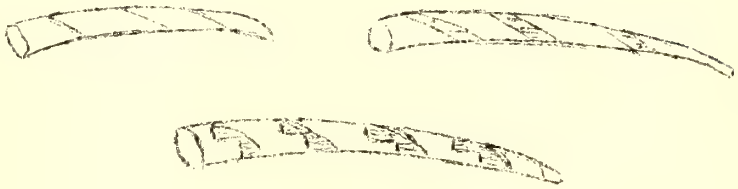
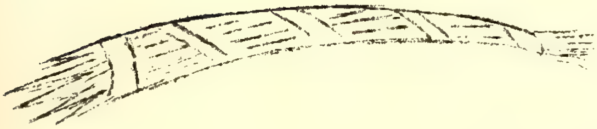
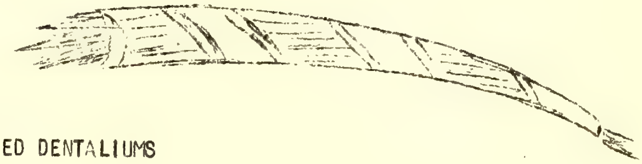


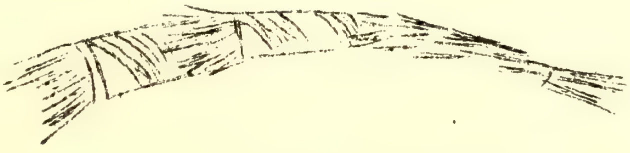
fig. 2-b

CARVED DENTALIUMS





CARVED AND ORNAMENTED DENTALIUMS



MINUTES OF THE CONCHOLOGICAL CLUB OF SOUTHERN CALIFORNIA
November 6, 1951

The meeting was called to order by Mrs. John Q. Burch, President, at 7:30 P.M. 19 members and guests were present. The President announced that a number of the members were sick and unable to be present.

The Club's cabinet is nearly ready and is being completed by Mr. Bessom.

The President appointed Dr. Gregg, Morris Caruthers and Dick Mayhew on the Nominating Committee.

Dr. Gregg made the report of the Nomenclature Committee and mentioned new publications, among them (1) Strong & Hertlein's Pt. 10- W. Mexican Gastropod Fauna, which includes some of the Turrids, Buccinidae Muricidae and Columbellidae, published in "Zoologica"; (2) Johnsonia- a number on Epitoniums on the Western Atlantic; (3) Bull. S. Calif. Sci.- three articles on new species etc. of West Coast Marine Shells; (4) Calif. Fish & Game- article on F.W. Mussels of Calif. by Paul Bonnot. Dr. Gregg brought specimens of Mussels (F.W.) and discussed the various species and mentioned additional species from California. It was moved, seconded and passed that the January meeting be on Jan. 8 instead of Jan. 1.

The speaker, Richard Morr, was introduced by the Program Chairman, Mr. Caruthers. Richard outlined his April vacation field trip to West Mexico and told of his collecting experiences, the various habitats visited, and the species collected in each habitat. The collecting locality was San Felipe on the Gulf of California. A Mexican family was gathering Angled Olives every day for food and for making ornaments. Richard's companions on the trip were Conchological Club members Don Wilson and Frank Hoover.

Mr. Burch read a paper by Mr. Andrew Sorenson on the Marine Mollusks of Sonora, West Mexico, followed by a discussion of W. Mexican Cone Shells- Ximenes and Mahogani.

Dr. Gregg reported on his recent field trip to S. Arizona, New Mexico and Texas, with Mr. M. Walton of Glendale. They secured many specimens of land shells. Limpia Mts., Texas, furnished the collectors with Humboldtiana Cheathami. This locality was about five miles north of Ft. Davis, Texas. They visited Guadaloupe Mts. in New Mexico and the Pecos River near Carlsbad. Secured a lot of Ashmunellas south of Capitan Mts.

Mrs. Mildred Woermann of 820 West Front Street, Alhambra, was presented for membership by Mr. Caruthers.

Adjournment followed.

Respectfully submitted,

H. R. Hill, Secretary Pro Tem

Mr. Geo. Kanakoff, Membership Chairman, received dues from the following: Dick Mayhew, Don M. Wilson, Richard Morr, Frank Hoover, George P. Kanakoff, Bessie Falconer, Mrs. Mildred Woermann, Dr. Howard R. Hill, John Q. Burch and Mrs. John Q. Burch.

The Nautilus, Vol. 65, No.2, October,1951. This is an unusually interesting issue containing the following papers: Dredging from the Cruiser Triton by Arthur B.Thompson,Paul L. and Thomas L. McGinty; A Peculiar Genus of Vitrinellidae by H.A. Pilsbry and A.A. Olsson; New Species of Epitoniidae and Vitrinellidae from Panama City by Axel A. Olsson and Maxwell Smith; Further Observat--ions on the Mollusca of the Relict Lakes in the Great Basin by Joshua L. Baily Jr. and Ruth Ingersoll Baily; Arion Intermedius (Normand) near Buffalo,N.Y. by Margaret C. Teskey; Olive Shells on Opposite Shores of the Gulf of California by D.S. and E.W. Gifford; Three New Land Snails from Eastern United States by Leslie Hubricht; A Report on Land Snails of the Jackson Hole Region, Wyoming by Lorna R. Levi and Herbert W. Levi.

The Hournal of Conchology Vol. 23, 24th October,1951. This entire issue is devoted to " Census of the Distribution of British Non-Marine Mollusca.

The Oyster Industry of Willapa Bay, Washington by Trevor Kincaid. This is a very interesting and beautifully illustrated booklet of 45 pages

Aplysia Badistes, a Peculiar Floridan Sea-Hare by Henry A. Pilsbry Notulae Naturae, No.240, Oct.17,1951

Hobbies, the Magazine of the Buffalo Museum of Science, Oct.1951 Vol32, No.1. This neatly prepared periodical contains in this issue a very complete account of the meeting of the American Mala--cological Union and includes an excellent picture of the group.

Catalogo Moluscos De Cuba by C.G. Aguayo y M.L. Jaume pp 701-725 This valuable work continues.

Circulares Del Museo y Bibliotheca De Malacologia De La Habana

Acerca De Las Formas Larvales De Mutelidae Ortmann por Argentino A. Bonetto- Journadas Icticas 1951,Santa Fe,Rep.Argentina. A paper on the Glochidia of the South American Unios.

The Distribution of the Genus Tomichia Bens. in Africa by B.Verdcourt
A New species of Hydrobiidae from the Belgian Congo "
A Revision of the Genus Otiophora Zucc. "
The Radulae of the British Non-Marine Mollusca XII and XIII "
D.D.T. Impregnated Paper "
Land Snails of a Residential Area in N.W. Hertfordshire "

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" Since the annual conventions of the A.M.U. and A.M.U.P.D. are highlights of these organizations and are fondly remembered once they are past, the secretary proposes to draft an official record of these occasions in scrapbook form. This record will be made available to all future meetings for the edification of all who care to consult it, and should also prove valuable as future refer--ence material. It will contain announcements,programs,newspaper clippings,group photographs, and candid snapshots. These latter are especially desired and those taken at the 1951 meetings are being solicited at this time.; any expense in connection with these items will be refunded if a bill is enclosed. Please send to Mrs. Margaret Teskey, 144 Harlem Ave., Buffalo 24, N.Y.

MINUTES 116
DECEMBER 1951

CONCHOLOGICAL CLUB OF SOUTHERN CALIFORNIA

Subscription $2.50 per year

We are now meeting the first Tuesday of every month at 7:30 P.M. at the los Angeles Museum, Exposition Park, Los Angeles, California. All interested persons are cordially invited.

Please mail all news to your editor- John Q. Burch
1584 W. Vernon Ave.,
Los Angeles 62, Calif.
Telephone Ax 3-5710
Home- Ax 2-7965

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PROCEEDURE IN TAXONOMY IN MOLLUSCA

I am sure that all will agree that if possible the proceedure under the International Rules should be uniform in all major groups. However, in practice, it seems that each specialty employs certain taxonomic terms applicable only to their own field and puzzling to those unfamiliar with their work. We students of Mollusca should be flattered by the recent interest in our work by specialists in other subjects. I received two letters questioning the use of the term " type lot". Of course, this did not originate with me, and I have in my collection numerous sets from some of the most outstanding authorities labelled " type lot, but not paratypes". This seems to be rather more in use by workers with land mollusks than with the marine. I have one case before me which is typical. Several hundred specimens of a new land shell were collected at one locality at one time. From these a dozen or more were sent to, in this case, Dr. Paul Bartsch who described the species. Naturally he selected one of them for his holotype, the others in his hands so designated became paratypes. This is clear. Of course, the remaining specimens not in the hands of the author are topotypes, but they are more than topotypes to any serious worker. I have topotypes collected years later at the same locality during a different period of the year, with an intervening period

of either drought or heavy rains that differ vastly from the original type lot. I have others before me including an almost identical case by described by Dr. H.A. Pilsbry.

The hair line distinctions between types below that of holotype and paratype are, to be true, very carefully laid out, even as suggested in Proceedure in Taxonomy by Schenck and McMasters, revised by Keen and Muller, or in many other publications.

I recently had a visitor who had described a good many new species. In going through my collection he verified my diagnosis of many of his descriptions. As you know, this made them another type, homeotype perhaps, and if they happen to be topotypes, no doubt I would be permitted to add that term with the result that my one shell might well bear several distinct type designations. I find that in general practice the terms homeotype etc. ad infinitum are really not in general use.

This matter came up because I have, as a dealer, offered shells labelled " type lot", and the inference was that I had advertised shells as paratypes that are not paratypes. At the November meeting of the Conchological Club of Southern California I briefly asked if any member present misunderstood exactly what I had offered as a specimen from the " type lot". As expected, all knew what I had. It was assumed that those lists were going to conchologists familiar with the usage. I have offered a number of paratypes in the same lists. These were, of course, from the original lot before the author at the time of the description and so designated as paratypes by the author. It should seem clear to anyone that an offer of a shell from a " type lot" and in the same paper in a following paragraph or page offering another as a genuine " paratype" were two different classifications.

John Q. Burch

****

A personal communication from Dr. A. Myra Keen states that she fully approved of my statement of the utility of the "type lot" concept, and that Dr. Muller concurs.

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The following personal communication from Dr. Joshua L. Baily Jr.

Dear John Burch:

It is a strange coincidence that your letter about the correct designation for a specimen taken from the same locality and at the same time as the holotype should have reached me so soon after I had written my letter to " Science" in which I had discussed the same matter. The editor of " Science" has not yet published this communication, but I have no doubt that he will eventually do so, and as I can see no reason why you should not print the gist of my comments in the Minutes of the Conchological Club of Southern California, I am hereby recounting what I said in that letter. I did not retain a carbon copy and so cannot repeat it verbatim.

It is quite true, as you say, that such specimens are far more important than ordinary topotypes, but since they did not figure in the formulation of the description and may not ever have been seen by the describer, they cannot be considered paratypes. The appropriate designation for them would be " syntype" which means

" together type", since they were taken together with the holotype, but unfortunately this term has come into popular use with the same meaning as the older term " cotype", to designate one of a series of specimens to which equal weight is accorded in defining the species. This is exactly what the term " cotype" means literally. and the use of " syntype" instead of " cotype" is to be deprecated. Further, the status of the " cotype" is often a temporary one; after a series of cotypes has been established any subsequent reviser may designate any one of them as the holotype, in which case the others automatically become paratypes, and so cease to be cotypes or syntypes. This undesirable and inappropriate use of the term " syntype" has proceeded so far that it is now too late to restrict it to its literal meaning, and a new term must be found. The possibilities of the Latin and Greek languages seem to have been exhausted, and so I suggested in my letter to Science that recourse be had to classical Hebrew. On consulting a Hebrew lexicon I find that there are several different words in that language meaning " together" and that only one of them makes a euphonius combination as a prefix to the word " type", the others being too long. Accordingly I suggested that a specimen taken from the type locality at the same time that the types were collected, either by the original collector or in his presence, be known as a " hamatype". I have some hamatypes of my own which I shall distribute as soon as the descriptions have all been published, and I shall use the word " hamatypes" on the label.

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Any comments on the above problem from others interested will be greatly appreciated.

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DEALERS IN SPECIMEN SHELLS

I was rather amused at the comment of one of the critics of common practice among conchologists. He actually questioned whether type material should ever be sent to a dealer.

In my role as a dealer, I am but a very humble representative of a long line of illustrious forebears. I only wish that I could be worthy of being classed with the great Sowerbys, all dealers, ending with the death of the late Hugh Fulton of the firm of Sowerby and Fulton. A large number of the greatest scholars of all time have been dealers, and their contributions to conchological science have been second to no other professional group.

I am proud that specimens bearing my label are to be found in the collections of almost every great institution on earth. I often receive fine material, paratypes, type lots etc. from the most outstanding scholars, and institutions of international standing. I do not recall an instance in which they wished to sell these duplicates for money, but they send unneeded material in exchange for other specimens they wish or perhaps for books.

It seems there has been some ado about a lot of shells recently sent to me in exchange for other material of use to the institution sending them. This type material is even now finding its way into the collections where they will be studied and used and not simply shelved. If there is anything infamous about such an exchange our critic may as well start in with the national museums of every nation on earth and work down to all others.

I was greatly impressed some time ago when a very elderly doctor sent his fine collection to me as a ' gift'. He explained that he had considered donating his collection to his Alma Mater or some other institution, but having been closely associated with these throughout a long life he knew that in all probability they would quickly find their way to the store rooms in the basement or the attic. He said that many of these specimens had been his treasures which he enjoyed and studied, and he felt that in giving them to me , they would pass into the right hands. The person willing to pay money for a fine shell is one who will appreciate and enjoy it, and he said that he would feel better knowing that his treasures were being used by those who really want them.

****

Axinopsida - A New Generic Name

The following note from Dr. A. Myra Keen

" In Minutes No. 94, p. 1, it was pointed out that *Axinopsis* is a homonym. A new name is now available- *Axinopsida* Keen and Chavan in Chavan, 1951 (" Denominations supraspecifiques de mollusques modifiees ou nouvelles," Comptes rendus Sommaires de la Societe Geologique de France, no. 12, for June 18, 1951, p. 210), type (by original designation): *A. orbiculatus* (Sars).

****

A few personal notes-

Dr. H.W. Harry, Zoology Dept., University of Missouri, Columbia, Mo. " ... This summer spent with the Limnology Dept., Phila. Acad. Sci. We did stream work on three rivers of the southern states, Loosahatchie in Tenn., Savannah R. and James R. in Va. Chuck Wurtz and I did general invertebrates.."

Mr. and Mrs. Willard Mohorter, Cincinnati, Ohio . They are planning a trip to South and Central America. Professor Brand is going to Mexico for a year, and they hope to join him in some shelling in southern Mexico. Mr. Dury of the Cincinnati Museum will do so. " My Florida friends are taking some extra beautiful and rare shells from the wreck the Salvage Companies are bringing into Key West and Miami.

Mrs. George Bromley, Waipahu, Hawaii . " ... Our Hawaiian shells are becoming more and more scarce as so many new collectors are picking up any and all which are alive whether they are good specimens or not. Being an old timer it bothers me to see the shells becoming extinct in some cases. There are upwards of some fifty ardent collectors on this island, so you know what I mean. Some areas are definitely picked clean. I worked Haliewa Bay many times this summer and there was not one single *Conus millepunctatus*. No *Conus miles* or *distans* and few *omaria* in a four mile area. The common *Cypraea caput serpentis* is far from plentiful. I had to work very hard to find a dozen good *Terebra crenulata*. The *T. chlorata* , *candida*, *spauldingii* and others are really few and far between. "

Miss Ruth E. Coats, 3846 Skyline Road, Carlsbad, California.
The new shell house is nearing completion and we expect the Coats to be settled in the new California home within the next few weeks.

William K. Emerson, Museum of Paleontology, Berkeley 4, Calif.
" Since the publication of my short paper concerning the occurence of Zirphaea pilsbryi boring in wood, (Bull. So. Calif. Acad. Sciences, 50:89-91,pl.30), Mr. E.P. Chace has sent the following note of interest:

" July 21,1946, I was collecting in Willapa Bay at Bay Center and digging for Petricola in a clay bank between the mudflats and the bluff where I came upon a tree trunk imbedded in the clay. It had been there many years and was well softened by the action of the mud and salt water. I found Petricola pholadiformis and Penitella (Pholadidea) penita boring in the soft wood of the tree trunk. Zirfaea pilsbryi was present in the mudbank and with more searching it might have been found in the log."

****

A Brief Note on What Might Be Called Etiquette

It is not unusual for a collector to take a number of puzzling shells and send a few of them to each of a number of different persons asking their opinion on the proper classification. I have had many hundreds of such shells sent to my desk, and in a number of cases I have advised that in my opinion the species is not described. In a number of those cases I have been requested to describe it as a new species and have done so. However, it has never occured to me that it would be proper or expected of me to immediately describe the species without first hearing from the collector. However, this seems not to be the custom with all, and the result is that occasionally two will describe the same shell. So it is suggested that when sending shells to several persons that it be mentioned that specimens have been sent to others. This might avoid such an embarassment.

****

Purpura patula pansa (Gould) . In one of the Minutes earlier this year I mentioned that this subspecies seemed to be consistently distinct from the Purpura patula patula from the other coast in that the West Coast shells always show a streak of white on the columella. And the question was asked whether or not the Atlantic specimens ever showed this white streak. Frank Lyman dropped a card saying that he had never seen a specimen from the Caribbean area with this streak. Inasmuch as Frank has probably handled as many or more of them than any other living person the question is deemed settled.

****

Dr. G. Dallas Hanna . We have missed Dr. Hanna's opinions on our shell problems the past couple of years. The reason is that he has been engaged in building the new Planetarium in San Francisco. He made the Los Angeles newspapers this month with a large article New California Planetarium Biggest Ever Built in U.S.

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The Daily Palo Alto Times carried a long article Dec.5,1951- Keith Cox,biologist for the bureau of marine fisheries is at work at his office in the Stanford Museum these rainy days laying out a campaign which, he hopes, will unveil the secrets in the life of the abalone. Cox, a Redwood City man was appointed last week to direct the bureau's state-wide study of abalone. He replaces Paul Bonnot, marine biologist who died of a heart attack last August.

****

DIRECTORY OF CONCHOLOGISTS

The 1952 issue is now ready and will be mailed to all interested.
$1.50

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At the December meeting of the Conchological Club of Southern California, the following officers were elected for the year .

This will appear in the regular minutes though.

Dr. A.D. Howard is the newly elected president, and Miss Bessie Falconer the new secretary, H.A. Edwards the new vice-president.

The committees etc. will, of course, be announced at the next meeting.

****

Some New Publications Received

Basteria Vol.15,Nos. 3 and 4, 1951. This is the journal of the Malacological Society of the Netherlands.

One valuable paper is one that should be in the hands of all interested in radulae. It is " Bibliography of Radulae Figures of the British and Dutch Non-Marine Mollusca" by L.A.W.C. Venmans and Bernard Verdcourt. Another paper that attracted my interest is one by L.B. Holthuis " Note on Caledoniella montrouzieri Souver--bie, a Gastropod Mollusc living commensally on Stomatopod Crustacea". I am reminded of the interest we had when we found the commensal Rochefortia on the local Blepharopoda and at the moment have some similar commensal puzzled somewhere on the top shelf waiting for the time to study them. Another paper of interest is " Ferussac--iidae du Congo Belge" by Edm. Dartevelle and L.A.W.C. Venmans. Also " Malacologische Aantekeningen" by L.A.W.C. Venmans. Other papers are one on Scala clathrus by B.J.J.R. Walrecht and Gilbertia prosperi n.gen, n. sp. from Pliocene- by J. Van Der Meulen.

The Malayan Species of Diplommatina (Cyclophoridae) by F.F. Laidlaw. Bulletin of the Raffles Museum, Colony of Singapore, No. 19, Jan.,1949. This seems to be an interesting group of which I at least have never seen a specimen.

A List of the Species referred to the Genus Diplommatina (Mollusca, Prosobranchia Cyclophoridae) recorded from Borneo by F.F. Laidlaw Raffles Museum, No.23, Dec. 1950

The Radulae of the British Non-Marine Mollusca XII by Bernard Verdcourt. From the Microscope, July-August 1949.

Land Snails of a Residential Area in N.W. Hertfordshire by Bernard Verdcourt- Journal of Conchology, March,1951.

REPORT OF THE PRESIDENT OF THE CONCHOLOGICAL CLUB OF SOUTHERN CALIFORNIA

December 4, 1951

Dear Fellow Members of the Conchological
Club of Southern California -

With this meeting our Club Year ends, and also my term as your President. I hope thishas been a full and pleasant year for you, as it has for me. At each of our twelve meetings the program Chairman, Mr. M. Carothers, has presented interesting and instructive speakers on subjects of interest to us.

Through the Nomenclature Chairman, Dr. W. O. Gregg, and editor of the"Minutes", Mr. John Q. Burch, we have been kept informed of newmaterial and changes in nomenclature.

I wish to take this opportunity to thank Mr. George Kanakoff and Mr. L. Besson for their part in securing our cabinet, and to thank Mrs. H. A. Edwards for assisting in correlating the "Notes" printed by Mr. James Marsh from 1939 to July 1941, and the"Minutes", edited by John Q, Burch from July 1941 to date. This was a lengthy task covering publications of more than twelve years, and there is still work to be done. I regret not being able to say tonight that the job is completed.

At the beginning of the year your President thought how nice it would be to call on each member during the year. Having a small membership, with often two members in a family, it would not ordinarily be a big task, but our members are scattered. So to you whom I did not get to see, my regrets, and I am looking forward to that pleasure in the future.

I take this oppotunity to thank each one of you for your cooperation during thispast year. We begin 1952 with a new Staff of Officers, and I am sure you join me in also pledging them our hearty support.

I extend Seasons's Greetings to All.

Mrs. John Q. Burch

MINUTES OF THE CONCHOLOGICAL CLUB OF SOUTHERN CALIFORNIA-DECEMBER 1951.

The Conchological Club of Southern California held its monthly meeting at the usual place on December 4, 1951. Thirty-three members and guests were called to order by the president, Mrs. Burch.

Special guestsintroduced were Julia Ellen Rogers and Mr. John Barnes, guest of Mr. & Mrs. Edwards. The Vlub also welcomed Mr. Morris Schick, who returned after a long absence.

A bill from Mrs. John Q. Burch, $6.00 for postage and notices, was presented and orddred paid.

The Nomenclature Committee report by Dr. Gregg called our attention to the fact our common slug is now being called Limas Poirieri Mabille.

The President's report was redd by Mrs. Burch and has been filed. Report of Nominating Committee was presented as follows:

President - Dr. Arthur Howard
Vice Pres. - Mr. H. A. Edwards
Secretary - Miss Bessie Falconer

Upon motion the Nominations were declared closed and the Secretary instructed to cast a unanimous ballot for the nominees. This having been done Mr. Caruthers introduced the speaker, Mr. H. A. Edwards, who spoke on "Color in Shells", particularly in the cones. Mr. Edwards illistrated an excellent talk with beautiful specimens and speciallymade paintings showing the nasic colors and patterns in the various groups of Cones. He emphasized the fact that purple and violet are NOT synonymous, purple being close to the RED and violet to the BLUE.

He also urged that conchologists describing new species use some accepted color standard; for example, not "light brown" but perhaps "Isabella Brown of Ridgway", a practice now being followed in other branches of natural sciences.

As the hour was growing late, Mr. Kanakoff's paper was held over for the meeting on January 8. The Club adjourned to the other room where refreshments were served and gifts exchanged.

Respectfully submitted,

(signed) ELSIE M. CHASE, Secretary

REPORT ON "JANTHINA" sp.
Given to: THE LONG BEACH SHELL CLUB
December 9, 1951

By: Captain Fred E. Barnett,
Long Beach Shell Club (member)

In mid-May, 1951, I was laying too about fifteen miles out to sea from Las Frailes, Gulf of California, (approximately 1,000-F.) weathering out a storm. The ground swell running, was enormous, About 8:00 A.M., as the ship rolled and tossed, I noticed white foam, resembling feathers, covering the water as far as the eye could see. As this continued, I determined to obtain a sample to see what this could be. I put over the ladder, and, hanging on so as not to be washed overboard in the roll, I dipped up a sample with an ordinary kitchen collender being the only thing at hand and not being sure that this might not be some form of jellyfish. It was well worth the soaking I took when I found it was "Janthina" attached to the leathery, plastic bubble type raft.

The rafts, en-mass, appeared white but upon individual inspection, were found to be clear and transulant. The rafts were not flat as I had visualized from drawings I had seen, the bubbles being more stacked like stones one upon the other making a rather conical shape, and therefore, being concave on the underside. In this hollow concave underside, were the cream colored eggs. The larger rafts measured approximately 3-1/4 inches long, 1-1/4" wide and 1/2" thick. (See sketch). The shell was, for the most part, found on one end, on the underside, and in the same position but in a few instances, they were found elsewhere in position but ALWAYS - on the underside and in NO instance were any found on the topside of the raft. Also in NO instance, did I find over one shell to a raft.

Also, in NO instance, did I find over one shell to a raft. The shell was not attached by a bysus but was as though "iron-glued" to the raft and was extremely strong and difficult to break loose without crushing the smell which of course, in itself, is so very fragile. The bubbles of the raft were tough and popped, when broken, like a plastic bubble or dry seaweed, being, of course, hollow. I took very large "Janthina" and very small, and on the whole, the larger snails had the larger rafts but in some instances, it was amazing the size of the rafts for a tiny shell.

The rafts, with snails attached, were observed for five straight days. I had been fishing prior to sighting the rafts and had not seen a single turtle. However, from the time the snail rafts appeared, turtles arrived by the hundreds and started feasting on snail, raft and all. There were NO birds feeding on the snail or raft. Toward the end of the five day period, the rafts, with snails attached, seemed to bunch together in two's and three's as though fertilizing their eggs. For two days after the five, I observed rafts floating ONLY - minus the snail and at which time, the rafts extended from my position mentioned, almost into the beach. As the rafts floated alone, the turtles left and I had to, also.

- NOW -

I wish to point out some of the statements which I have read concerning "Janthina" as follows - "If a heavy storm arises during breeding season, these individuals are unable to sink and they are washing ashore."
Another - "It is kept at the surface by a singular raft which it secretes and it feeds upon small jelly-fish; that it usually lives far out at sea; some shells get washed ashore. Janthina J. globoa, Swains, has been found on our southern shores."

"Janthina Exigua, Lamark, is a pelagic moolusk with a thin delicate shell which is sometimes washed ashore. A large school of the animals floating under their rafts, is not easily seen by the ocean traveler since the blue of the shell blends with the blue of the water."

And again to quote "Pelagic" - storm wrenches many apart. Fish nip off portions of the float. But a violet snail bereft of its raft, drops to the bottom and has not power to raise to the surface - die on the ocean floor. Chief enemies - birds. Feeds on small jelly-fish."

SUMMARY

1. Shells living in deep water have, on a whole, a very thin shell.

2. That most "sea life" from deep water is red, dark blue, purple or black.

3. MY conclusion which is contrary therefore to the belief that "Jathina" is pelagic - is that "Jathina" lives in very deep water coming to the surface only to deposit its eggs and then returns to the depths. I firmly believe, that the plastice type bubble of which the raft is built, is begun in deep water and as they add to this, it slowly buoys them to the surface for their mission which, when completed, the raft is disregarded leaving the eggs on the raft to be hatched by the sun while the shell itself returns to the depths.

(signed) CAPT. FRED E. BARNETT

MINUTES 117
JANUARY 1952

CONCHOLOGICAL CLUB OF SOUTHERN CALIFORNIA

Subscription $2.50 per year

We are now meeting the first Tuesday of every month at 7:30 P.M. at the Los Angeles Museum, Exposition Park, Los Angeles, California. All interested persons are cordially invited.

Please mail all news to your editot-John Q. Burch,
1584 W. Vernon Ave.,
Los Angeles 62, Calif.
Telephone Ax 3-5710
Home- Ax 207965

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Personal communication from Dr. H.A. Pilsbry, now wintering at Lantana, Florida.

" Dear Mr. Burch: In reply to your inquiry: Your label " not a paratype but from the type lot" is perfectly proper and very useful. As you remark, such a specimen is much superior to a topotype collected subsequent to the type lot.

I have been intending to ask you for any West Coast Vitrinellidae you may have to spare- whether named or undetermined. I have written a paper on the Panamic region species, which will be published this winter; but I have few West Mexico and California species, partly from Hemphill. If you have any please send to me in Philadelphia, as I shall return there in April. No hurry.

Very sorry that Strong dropped out. He was one of the best. Where did his collection go ?

The McGintys here are getting some fine things in 40-100 fms off Palm Beach, but while there are many species specimens are rather scarce. It is not at all prolific in individuals and they get quite a number of uniques. I am working now on their barnacles."

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Note- I assume that it is needless to suggest that any of our members send available Vitrinellidae.

MINUTES OF THE CONCHOLOGICAL CLUB OF SOUTHERN CALIFORNIA - JANUARY 1952.

CALLED TO ORDER: The Conchological Club of Southern California held its monthly meeting at the usual place on January 8, 1952. Meeting was called to order by the President, Dr. Arthur Howard.

MEMBERS PRESENT: There were 23 members and 6 guestsat our first meeting of the year. The guests were introduced and welcomed to our meeting and invited to attend again.

DUES: B ecause of the increased postage rate, Mrs. John Burch moved to increase the Club dues from 25¢ to $1.00 per year. It was seconded and voted down. After a discussion, Dr. W. O. Gregg moved to change the Club dues from 25¢ to 50¢ per year. It was seconded and passed. The Club dues are now 50¢ a year.

REPORT OF FIELD TRIPS: Mr. L. C. Bessom, Chairman, reported a low tide COMMITTEE of -1.9 on Saturday, January 26, 1952, at 3:22 P.M. A field trip was planned to meet at White'sPoint, and everyone was urged to attend if possible.

NOMENCLATURE; Mr. E. P. Chace, Chairman, reported from Southern California Academy of Science, Vol. L, Part 3, of September and December, 1951.
1. Description of new species of Marine Gastropod from West Mexico by George Hertleine and A. M. Strong. Acmaea turveri - L. 18.3; W. 16.0; H. 4.2; M.M. collected in 1942 by Mr. and Mrs. H. T urver, at Punta, Colorado, near Guaymas, Mexico.
2. A new Sonarella from the Chiricahua Mountains of Arizona, by Dr. W. O. Gregg, Sonarella neglecta, October of 1948.

MEMBERSHIP: Mr. M. E. Caruthers, Chairman, as Mr. Caruthers was not present no report was given.

PROGRAM: Mr. H. A. Edwards, Chairman. As Mr. Edwards was ill, Mrs. John Burch gave his report, suggesting that a series of programs be given on "What Conchology means to me as a Museum Director, a professor, a student, an artist, ahousewife, etc." At the end of the series have asymposium of "What Conchology means to me."

After a general discussion, it was felt that Mr. Edwards' suggested program for our Club meetings was very good and would be interesting and helpful; but felt that the time for that type of program should be brief. As the Club now has a good reputation for its scientific contributions in the field of Conchology, the greater part of the time should be kept for scientific papers. Mrs. John Burch was asked to convey this message to Mr. Edwards.

EDUCATIONAL: Dr. W. O. Gregg, Chairman, reported on its function and purpose, inviting the beginners to feel free to ask for help, stating that it has always been a tradition with the Club to help the beginners.

SPECIAL COMMITTEE: Mrs. John Burch had been appointed to assist in the Students Fair on April 19 and 20, 1952, it being sponsored by the Museum Educational Dept. As yet Mrs. Burch has not been asked to give her assistance.

CABINET: We were all happy to hear Mr. Besson's report that the cabinet will be ready for use for our next meeting.

SPEAKER: Mr. George Kanahoff presented in a very interesting way his subject "The Latin as she is Spoke" or Philogy in Conchology. Mr. Kanahoff pointed out the importance of Latin, and gave helpful information on the pronunciation of the latin language. He feels that the teaching of languages should be taught by the direct method.

After an interesting discussion the meeting was adjourned.

Respectfully submitted,

(signed) Bessie Falconer, Secretary

TREASURER'S REPORT JANUARY 1,1952

Cash on hand Jan. 1, 1951	$11.49
Dues received during year	13.50
	$24.99
Disbursements itemized in book	11.65
Cash on hand January 1, 1952	13.34

CLUB MEMBERS

Active members	62
Associate members	3
Honorary members	3
Average attendance for 1951	25
Total attendance	305

Respectfully submitted,

(signed) Elsie M. Chace

* * *

CONCHOLOGICAL CLUB OF SOUTHERN CALIFORNIA

Program for the meeting to be held Feb,5,1952- 7:30 P.M.

Jack Baker, Diver- What conchology means to me

L.C. Bessom, Diver-

A motion picture film " Spear That Fish" by Leon Paddock

H.A. Edwards- Program Chairman
Dr. A.H. Howard, President

SNAIL BILLS IN CONGRESS

At the 1951 meeting of the AMUPD there was a great deal of discussion about certain legislation prpposed to control the importation of living snails that might become pests. Fear was felt by some that if such legislation were to be passed without consulting those interested in scientific research that some of the results might be undesirable. It seems that substantial progress has been made but at the moment we are uncertain about all of the final results. The following is a letter from Dr. Albert E. Mead to Mr. Allyn Smith, Secretary of the AMUPD last year and now vice chairman.

" The copy of the official letter which you prepared for Senator McFarland has been received. Your timing was particularly good inasmuch as Senator McFarland received his copy during the height of activity on the two " snail bills" before Congress. I like to imagine that it was responsible to a fair degree for the speedy and successful passage of both bills. As a matter of fact one of the bills (H.R. 4443) has already been signed by the President and is now Public Law 152 of the 82nd Congress. I am enclosing for your information two copies of P.L. 152 for you and Dr. Hertlein.

Senator McFarland's bill (S.1489) apparently did not go all the way to the President as it was merely the companion bill to H.R. 4443. At any rate, the bill we discussed at the Pacific Division meetings has now become law. The work is just beginning, however, because the Secretary of Agriculture still must prepare regulations which will prove adequate and yet not unneccessarily restricting. I am looking particularly to the possible interference in conchological traffic. My advice is still being sought by the agent of the Secretary of Agriculture and I am hoping that through these contacts I will be influential in steering them clear of some of the tangles we discussed.

During my attendance at the AMU meetings in Buffalo last August, I learned that both R. Tucker Abbott and Joseph Morrison will be " on the spot" men to assist further in drawing up these regulations. ..."

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A brief summary of the bill now law is simply that regulations governing inspection and treatment of produce, baggage, salvaged war materials and other good entering the United States from areas infested with any terrestrial or fresh water mollusk as he considers necessary to prevent the entry of such mollusks into the United States shall be made by the Secretary of Agriculture. Penalty $500 fine, one year imprisonment or both.

It is therefore obvious that we will not know the exact nature of the new law until the above mentioned regulations are known.

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SOME NEW PUBLICATIONS RECEIVED

Land-Och Sotvattensmollusker - Henrik Waldén- from Faltbiologen Aug.,1951- A well wriiten paper with 40 text figures.

Bulletin of the Southern California Academy of Sciences-Sept.-Dec. 1951.

Descriptions of Two New Species of Marine Gastropods from West Mexico and Costa Rica By Leo George Hertlein and A.M. Strong.
Acmaea turveri - Gulf of California to Peru
Alvania milleriana- Ballena Bay, Costa Rica

A New Sonorella from the Chiricahua Mountains, Arizona by Wendell O. Gregg. *Sonorella neglecta*

Proceedings of the Malacological Society of London- Jan. 1952
Notes on the Trigoniidae, with outlines of a classification of the family by L.R. Cox
On Barnardaclesia cirrifera Q. and G. By N.B. Eales
A new fossil gastropod from the Middle Eocene of Ameki, Nigeria By A. Chavan
Mactrona a new name for Mactrula Marwick, preoccupied. By J. Marwick
Singletonaria, a new genus of the Struthiolariidae from the Australian Pliocene. By J. Marwick
The role of the crystalline style. By J. Morton
Rediscovery of Arion lusitanicus Mabille in Britain. By H.E. Quick
The habits and habitats of Apporhais pes-pelicani(L.) By H. Barnes and T.B. Bagenal.
On a collection of molluscs from Dry Tortugas, Florida . By K.M. White.

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HOW BARNACLES LIVE

By Frank Lee Rogers, Calif. Acad. Sci.

The barnacles live in the heaving sea.
For race survival, each is he and she.
(With some exceptions, which we will not note,
Though from great Darwin (1) we could duly quote)
Some live a thousand feet or more (2)
Below the waves; and some live by the shore, (3)
And tiny limpets and small snails protect.
Some voyage far on ships, (4) and some elect
To live on turtles (5), some to live on whales (6).
One on the surface with its own raft sails. (7)
The castles that they build, no engineer
Could better plan to stand a stress severe.
Beauty they have- faint pink (8), or bolder red (9).
By lordly Neptune all their host is fed.

Footnotes

(1) Darwin p.23
(2) Balanus hawaiensis, e.g.
(3) Balanus glandula "
(4) Balanus trigonus "
(5) Chelonibia sp.
(6) Coronula sp.
(7) Lepas fascicularis
(8) Balanus flos
(9) Balanus tintinnabulum var.

MINUTES 118
FEBRUARY 1952

CONCHOLOGICAL CLUB OF SOUTHERN CALIFORNIA

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Please mail all news to your Editor - John Q. Burch
1584 West Vernon Avenue
Los Angeles 62, California
T elephone AX 3-5710
Home AX 2-7965

LAND SNAILS OF POINT LOBOS STATE PARK

by
ALLYN G. SMITH

The pinesand cypresses of Point Lobos, and the lower growth that comprises the heavy ground-cover under them, provide an excellent home for at least four species of native land snails. Because of their secretive nature it is unlikely that any but the most careful observer among the many Park visitors will ever come upon living examples of any of these snails. But an occasional shell, dead and bleached white from long exposure to sun, wind, rain and salt spray from the ocean, is to be seen on top of the ground.

The largest of the land snails of Point Lonos, and the most conspicuous, is the Cypress Snail, which grows to a maximum diameter of an inch or more. Its distinguishing feature (one common to many of our larger native California species) is the dark-brown narrow band, bordered above and below by light yellowish bands that encircle the shell. The Cypress Snail is most active in the spring of the year when occasionally it may be seen crawling about on the vegetation after awarm rain or early in the morning while the dew is heavy. But when the sun grows warm and the humidity decreases it crawls to cover under

logs, pieces of bark or piles of brush. A favorite hiding place is among the mats of Beach Aster(Mesembryanthemum) that covers so much of the steep slopes of the Point facing the ocean. It is in the early spring that this snail lays its eggs - clustersof ten to twenty or more-looking like little bunches of seed pearls - fairly deep in the rich mold of rotting cypress leaves and twigs that has been gathering and deepening for many hundreds, perhaps thousands of years. In summer the Cypress Snail goes into itslong sleep of hibernation, burying itself deeply in the mold and closing the mouth of its shell with a door of mucus, which it secretes and which soon dries forming an impervious seal. With the first rains in the fall the snails become active again and the cycle of life continues. Other than the occasional conchologist, the Cypress Snail has two principal enemies that are ever active - the ubiquitous and always present blue-jay, and the ground squirrel. The shells with their tops neatly broken out are the mute evidence that the inhabitants made a fine morsel for one or the other of these active marauders.

Another snail of Point Lobos is the California Snail, which is found along with the Cypress Snail, but which is scarcer for the reason that the Point (so far as known) is close to the southern most boundary of the range of this species. It is found more abundantly in the sandy soil of the Monterey Peninsula under masses of yellow lupine. The California Snail has a much more globose shell than its cousin, the Cypress Snail, and also its shell is much thinner. Its life history, however, is similar. The shell is light horn-color with the usual encircling narrow brown band. It grows to a diameter of about three-quarters of an inch.

A third species, found occasionally, is the small Haplotrema, which has a flat, coiled shell about half an inch across or so. The color is uniformly light yellow with no bands or other color markings. This snail objects to light. It is seldom, if ever, found on the surface and may be discovered only in places where the soil is always moist, as under the Beach Aster.

The other Point Lobos snails are little fellows - so small in fact that it takes an expert to find them. Even he can be successful only after a most careful and painstaking search. One of the most interesting of these is the Cypress Vertigo, a variety of a species that has a relatively wide range in favored spots in California. This variety, however, has only been found at Point Lobos, on the nearby points Cypress and Pinos, and on the Monterey Peninsula. It lives only under cypress trees under bits of bark and dead branches. The tiny shell is high-spired, reddish brown, and small than a printer's "o".

Another is the Puget Sound Glass-Snail, found all along the Pacific Coast under leaves, and somewhat sparingly at Point Lobos. It has the same general color and form of the small Haplotrema except that it is a twenty-fifth of an inch in diameter instead of half an inch.

A third small species, like the proceding but three times larger, is a variety of the Catalina Haplotrema, which was first discovered many years ago on CatalinaIsland. Afew of these shells have been found on the Monterey Peninsula, though not actually within the confines of Point Lobos State Park. Quite likely it will be found there some day. A fourth not yet found in the Park but to be looked for there, is the Dot Shell, which lives among the grass roots. The Dot Shell is very dark horn-colored

and not much larger than the head of a common pin. Aseries of fine ribs cross the whorls of the shell, giving it an unusually striking appearance under a microscope.

No discussion of the land molluscs of the Park would be complete without mentioning at least one species of slug that is more or less common. This is the Great Columbian slug, the largest species in the country, and abundant all along the Pacifc Coast. This big yellow slug which sometimes has black markings, not infrequently grows to a length of nine inches. Although it carries no shell on its back into which it may retreat in time of danger, this slug, like most of his relatives, seems amply protected from his enemies by the slime it secretes. No hungry jay or ground squirrel ever seems to both it. Actually it does have a shell, a rudimentary one consisting of a flat shelly plate imbedded in its back near the front end of its body.

LIST OF SPECIES

Phylum and class	Scientific Name	Common Name
Pulmonata Geophila	Helminthoglypta dupetithouarsi (Deshayes)	Cypress Snail
	HELMINTHOGLYPTA Californica (Lea)	California Snail
	HAPLOTREMA minimum (Ancey)	Small Haplotrema
	VERTIGO CALIFORNIA cypress Sicola Sterk	Cpress Vertigo
	PSEUDOHYALINA Milium pugetensis (Dall)	Puget Sound Glass snail
	*HAPLOTREMA catalinensis var.?	Catalina Haplotrema
	*PUNCTUM CONSPECTUM (Bland)	Dot Small
	ARIOLIMAX columbianus Gould	Great Columbian Slug

*Found near, though not actually in Point Lobos State Park; to be looked for in the Park, however.

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MINUTES #118 held February 5, 1952, Los Angeles Museum Exposition Park, Los Angeles, California.

The meeting was called to order by the President, Dr. A. D. Howard. Thirty-five members and guests were present. In the absence of the Secretary, who is on a trip to Tropical America, Mrs. John Q. Burch was asked to serve as Secretary pro-tem.

It was moved to dispense with the reading of the Minutes of January 8; The guests were introduced. Mrs. Burch reported that Mrs. E. P. Chace had recently undergone an operation and was now convalexcing at her home. In the absence of Dr. W. O. Gregg, Chairman, Mrs. Burch announced the A.M. U. P. D. will have its annual meeting in Los Angeles, June 20-21-23.

REPORTS OF COMMITTEES:

FIELD: Low tides Saturday, February 9, -0.6 at 3:27 P.M.
" " 23, -1.5 at 2:18 P.M.

Live specimens of astraea inaequalis were reported as being taken littoral at Point Firmen

REPORT COMMITTEES cont.

NOMENCLATURE: Dr Hill reported on A M. V. Bulletin

MEMBERSHIP: Mr. Caruthers, Chairman, named on his Committee Richard Marr and Ned Baker

PROGRAM: It was reported by Mrs. Burch that while Mr. H. A. Edwards is home from the hospital and doing very well, he felt the trip to the meeting tonight would be too much of a tax on his strength.

The Secretary announced the Long Beach monthly meeting as February 10, 1952.

It was moved by John Q. Burch, that the S.C.C.S be asked to become a member of the A. M. U., seconded by Mr. Caruthers - Motion carried.

Ralph Akerly, Jr., 4131 Melrose Ave., Los Angeles29,was proposed for **membership.**

The following paid their 1952 dues: John Barnes, 1242 Wildwood Trail, LA
Mr. & Mrs. Howard Fletcher, Redlands
Mr. & Mrs. John Q. Burch, Los Angeles
Mr. Gerald Gaines, 333 S. Westminster LA 5
Mr. Morris Schick, 120 E. Chestnut,Glendale
Mr. Morris Caruthers, 719 S. Central, " 4

At the last meeting it was voted to raise dues from 25¢ to 50¢. Those who have not paid their dues for this year are asked to send them to the Secretary, Miss Bessie Falconer, 236 Bailey St. Los Angeles 33.

Dr. Howard introduced Mr. L. C. Bossom of the L. A. C. M. who spoke of his diving experiences, exhibiting hisdiving gear, and then presented amotion picture "SPEAR THAT FISH" written by Leon Paddock. T he picture was thoroughly enjoyed showing the underwter life near Guaymas, Mexico. There were some thrilling moments as the battle between the diver and the shark in which the diver killed the shark with his knife. The display of the sting rays leaping from the water in large numbers was interesting.

Perhaps the saddest part was showing the divers tearing away beautiful Spondylus, eating the meat and throwing away the shells which are in great demand by all collectors. The part showing a large eel attacking an octopus was interesting as was for that matter the entire film.

Dr. Howard also presented Jack Baker, diver, who held our interest with his story of two years of diving, three to five hours aday, five days aweek, in the Hawaiian waters. Mr. Baker exhibited many beautiful shells.

Meeting adjourned at 9:30 P.M.

Rose L. Burch

Signed: ROSE L. BURCH, Secretary Pro-tem.
(Mrs. John Q. Burch)

ANNOUNCEMENT

The FIFTH ANNUAL MEETING of the AMERICAN MALACOLOGICAL UNION, PACIFIC DIVISION, will be held in Los Angeles, California, June 20, 21 and 22, 1952.

Watch for details to be announced by Mrs. John Q. Burch, Arrangements Chairman. Those having papers to present should communicate with Miss Ruth Coats, Program Chairman, giving the length of the paper, approximate time required, and listing necessary aids, such as blackboard, baloptican or other projector, screen, etc. Let us all plan to attend and make this meeting even better than the fine meetings previously held.

Wendell O. Gregg, Chairman
Amer. Malacological Union, Pac. Div.
2200 S. Harvard Blvd. Los Angeles 27
Miss Ruth Coats,
3846 Skyline Rd, Carlsbad, Cal.
Mrs. John Q. Burch
4206 Halldale Av. Los Angeles 62

She drove her wheelbarrow through
streets old and narrow, - singing,
"Cockles and mussels, alive, alive-o -"

MINUTES 119
MARCH-APRIL, 1952

CONCHOLOGICAL CLUB OF SOUTHERN CALIFORNIA

SUPSCRIPTION $2.50 PER YEAR.

WE ARE NOW MEETING THE FIRST TUESDAY OF EVERY MONTH AT 7:30 P.M. AT THE LOS ANGELES MUSEUM, EXPOSITION PARK, LOS ANGELES, CALIFORNIA. ALL INTERESTED PERSONS ARE CORDIALLY INVITED.

PLEASE MAIL ALL NEWS TO YOUR EDITOR - JOHN Q. BURCH
1584 WEST VERNON AVENUE
LOS ANGELES 62, CALIFORNIA
TELEPHONE AX 3-5710
HOME AX 2-7965

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H. B. HERRINGTON, KEENE, ONTARIO, CANADA - PERSONAL COMMUNICATION TO W. J. EYERDAM:

I HAVE BEEN GOING OVER MY WESTERN PISIDIUM CASERTANUM (POLI) (= P. ABDITUM HALDIMAN AND P. CINEREUM ALDER) AND AMONG THE SPECIMENS I RECEIVED FROM YOU LABELLED LAKE MELAKALA, MT. KELECTAN, SNOQUALIME RES. KING CO., WASH., OCT. 6, 1935, WAS ONE FINE SPECIMEN OF P. CONVENTUS CLESSIN. AS FAR AS I AM AWARE THIS IS THE ONLY KNOWN SPECIMEN OF THIS SPECIES FROM U.S.A. STERKI SEEMS TO HAVE BEEN UNAWARE OF ITS EXISTENCE IN N.A. I THOUGHT YOU WOULD BE INTERESTED IN KNOWING THIS.

P. CONVENTUS IS A COLD WATER SPECIES, SO, IS FOUND ONLY IN THE FAR NORTH, IN MOUNTAIN LAKES OR IN DEEP WATER LAKES BY DEEP DREDGING. I HAVE FOUND IT IN ONTARIO IN THE LAKE WHERE WE HOLIDAY AND AT A DEPTH OF FROM 30-65 FEET. IT HAS ALSO BEEN FOUND IN L. MICHIGAN, ONTARIO.

SINCERELY YOURS,

H. B. HERRINGTON

IN A LETTER FROM DONALD AND DOROTHY CORDRY, IN MEXICO, THEY WRITE ON ACCOUNT OF MR. CORDRY'S LONG ILLNESS THEY REGRET HE IS UNABLE TO HANDLE ANY OF HIS SHELL CORRESPONDENCE AND SHELL EXCHANGES AND SUGGESTS THAT FOR THE TIME BEING HIS CORRESPONDENTS DO NOT WRITE HIM REGARDING SHELLS.

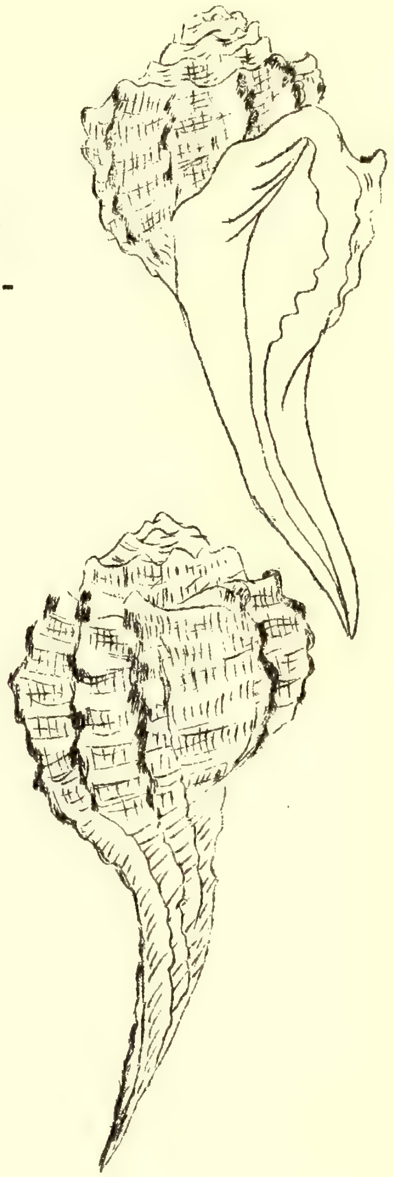
A NEW CYMATIUM FROM THE WEST INDIES

A. HYATT VERRILL

* * *

IN A SHIPMENT OF SHELLS RECENTLY RECEIVED FROM THE LESSER ANTILLES THERE ARE THREE SPECIMENS OF AN UNDESCRIBED CYMATIUM WHICH I HAVE NAMED IN HONOR OF MR. WILLARD MOHORTER OF CINCINNATI, OHIO.

CYMATIUM (RANULARIA) MOHORTERI, VERRILL



SHELL DULL WHITE WITH TWO OR THREE PALE ORANGE OR SALMON COLORED BLOTCHES ON DORSAL VARICE NEAREST LIP. A DISTINCT ORANGE-BROWN STRIPE ON THE SUMMIT OF EACH VARICE OF LAST WHORL AND EXTENDING TO THE TIP OF SIPHONIC CANAL. NUCLEUS HORN COLOR. INTERIOR OF APERTURE GOLDEN YELLOW BECOMING PALER ON THE BROAD BODY CALLUS AND EDGE OF LIP. SPIRE MODERATELY ELEVATED WITH THREE WHORLS. EIGHT PROMINENT VARICES FORMING SHARP, CONSPICUOUS NODULES AT SHOULDERS. EACH WHORL OF SPIRE WITH TWO CONSPICUOUS RIBS. BODY WHORL WITH SIX RIBS. FINE SLIGHTLY RAISED RIBS ON SHOULDERS AND BETWEEN THE LARGER RIBS. TEN TO TWELVE SPIRAL RIBS ON SIPHONIC CANAL. DENTICLES INSIDE OF LIP LARGE, SEVEN IN NUMBER. SIPHONOC CANAL LONG, TAPERING, BENT TO RIGHT FOR TWO-THIRDS OF ITS LENGTH AND TO THE LEFT NEAR THE EXTREMITY. BODY CALLUS BROAD, ELEVATED AT EDGE AND FORMING A FAIRLY HEAVY LIP EXTENDING THE LENGTH OF CANAL.

THREE SPECIMENS TAKEN IN TRAP AT SOUFFRIERE BAY, ISLAND OF DOMINICA, BRITISH WEST INDIES IN 75 TO 100 FATHOMS.

TYPE -- 76 MM IN LENGTH. 38 MM IN WIDTH. SIPHONIC CANAL 39 MM.

PARATYPE -- 48 MM IN LENGTH. 24 MM IN WIDTH. SIPHONIC CAN. 25 MM.

TYPE AND PARATYPE IN AUTHOR'S COLLECTION.

TO A SHELL

DEFTLY SPIRALED, PEARL-LINED CELL,
AZURE-ARMORED, SHINING SHELL,
DOES THE CHEMIST DARE TO GUESS
YOUR FORMULA FOR LOVELINESS?

WITH SUCH CURVED AND BALANCED FLOW
OF LINE AND SUBSTANCE, WHO COULD KNOW
OF ARTISTRY AND CALCULUS
HALF ENOUGH TO SHAPE YOU THUS?

BY VELMA FEHLING

FROM NATURE MAGAZINE, VOL. 45 - NUMBER 3 - MARCH 1952

MINUTES OF THE CONCHOLOGICAL CLUB OF SOUTHERN CALIFORNIA

MARCH, 1952

THE CONCHOLOGICAL CLUB OF SOUTHERN CALIFORNIA HELD ITS MONTHLY MEETING MARCH 4, 1952, AT THE LOS ANGELES MUSEUM, EXPOSITION PARK, LOS ANGELES, CALIFORNIA.

CALLED TO ORDER - THE PRESIDENT, DR. A. D. HOWARD, CALLED THIRTEEN MEMBERS AND ONE GUEST TO ORDER AT 7:40 P.M. WE WERE ALL VERY HAPPY TO HAVE MISS RUTH E. COATS REJOIN THE CLUB. MISS COATS HAS BEEN LIVING IN OREGON, BUT HAS RECENTLY MOVED TO CARLSBAD, CALIFORNIA.

REPORT OF COMMITTEES -

FIELD: - NO REPORT ON LOW TIDES AS MR. BESSOM HAS BEEN UNABLE TO OBTAIN A TIDE BOOK FOR 1952.

NOMENCLATURE: - MR. E. P. CHACE REPORTED ON THE NEW INDEX TO THE NAUTILUS VOLS. 35-60. ALSO IN THE NAUTILUS VOL. 65 No. 3. "MOLLUSCAN SHELLS OCCUPIED BY TANOIDS" BY DR. A.D. HOWARD. AND "FURTHER OBSERVATIONS ON THE MOLLUSCA OF THE RELICT LAKES IN THE GREAT BASIN" BY JOSHUA L. BAILEY AND RUTH INGERSOLL BAILEY.

PROGRAM: - DR. A. D. HOWARD READ A LETTER FROM MR. H. A. EDWARDS STATING THAT BECAUSE OF HEALTH CONDITIONS HE WISHED TO RESIGN AS CHAIRMAN OF THE PROGRAM COMMITTEE. MRS. JOHN Q. BURCH MOVED TO ACCEPT MR. EDWARDS' RESIGNATION, AND ASKED THE COMMITTEE TO CARRY OUT MR. EDWARDS' SUGGESTED PROGRAM FOR THE YEAR. THE MOTION WAS SECONDED AND CARRIED. MR. M. CARUTHERS MOVED THAT MISS RUTH E. COATS BE APPOINTED AS CHAIRMAN OF THE PROGRAM COMMITTEE. IT WAS APPROVED AND CARRIED.

SPECIAL COMMITTEE: - MRS. JOHN Q. BURCH REPORTED THAT THE CABINET WILL BE READY FOR USE FOR OUR APRIL MEETING. IT IS HOPED THAT A LIBRARY MAY BE WORKED UP AND THE BOOKS BE LOANED TO CLUB MEMBERS.

SPEAKER: - DR. A. D. HOWARD, HIS SUBJECT BEING "TWO VIVIPEROUS MOLLUSKS" - ABSTRACT FOLLOWS THE MINUTES.

THE MEETING CLOSED AT 9 P.M. WITH A DRAWING FOR A VERY FINE SPECIMEN OF PHALAS OROIDEA - GLD. COLLECTED BY MR. E. P. CHACE, FEB. 23, 1952, IN RATHER HARD ROCKS ON THE REEF AT CARPINTERIA, CALIFORNIA. OUR GUEST, MR. WILLIAM FORTIN, DREW THE LUCKY NUMBER.

RESPECTFULLY SUBMITTED

(SIGNED) BESSIE FALCONER, SECRETARY
236 1/2 BAILEY ST.
LOS ANGELES 33, CALIF.

WE HAVE RECEIVED THE FOLLOWING COMMUNICATION FROM OUR FRIEND, ROBERT TALMADGE OF WILLOW CREEK, CALIFORNIA. ALTHOUGH THE CONTEST IS CLOSED, HE HAS SENT IN SOME ITEMS (SIZES) FOR THE "LOST APERCULUM" WHICH HE FELT WOULD BE INTERESTING.

NEPTUNA SMIRNIUS DALL #677 - 165MM x 78MM - 215 FMS. OFF CRESCENT CITY, MUD BOTTOM

CALLIOSTOMA PLATINUM #681 - 40MM x 33MM SAME DRAG

NEPTUNA TABULATUM BAIRD #682 - 110MM x 43MM SAME DRAG

NEPTUNA PRIPILOTTENSIS DALL #699 - 135MM x 76MM SAME DRAG.

ALL TAKEN BY THE OTTER TRAWLER "BLUEFIN OF EUREKA" IN JULY 1949.
UNFORTUNATELY MY WORK KEEPS ME AWAY FROM THE DRAG BOATS SO I NOW HAVE NO CHANCE TO ADD TO OUR KNOWLEDGE OF DEEP MARINE SPECIES.

TWO VIVIPEROUS MOLLUSKS

(ABSTRACT)

THE FIRST I SHALL DESCRIBE IS A FRESH WATER MOLLUSK WHICH PRODUCES YOUNG OF PARASITIC HABITS THAT REQUIRE A FISH OF CERTAIN SPECIES FOR ITS COMPLETE DEVELOPMENT.

THE SCIENTIFIC NAME IS FUSCONAIA EBENA LEA WITH THE INELEGANT COMMON NAME OF "NIGGER HEAD" MUSSEL. IT IS A PRINCE AMONG MUSSELS BEING MUCH SOUGHT AFTER BY THE SHELL BUYERS. BRIEFLY THE DEVELOPMENT IS AS FOLLOWS. THE EGGS LEAVE THE OVARY, AND PASSING THROUGH THE SUPRA-BRANCHIAL CHAMBER FILL THE BROOD POUCHES OF THE GILLS. IN THIS SPECIES THE EGGS ARE OF A CONSPICUOUS PURPLE COLOR. THEY ARE PROBABLY FERTILIZED BY SPERM CELLS DRAWN IN BY THE INWARD CURRENT TO THE GILLS WHILE MAKING THIS PASSAGE. THEY DEVELOP THROUGH THE USUAL EMBRYONIC STAGES TO FORM GLOCHIDIA WITHIN A FEW DAYS. THE GLOCHIDIA ARE OF THE HOOKLESS, VICE, TYPE. WE COULD NOT FOR SOME TIME FIND THE HOST FISH EITHER EXPERIMENTALLY OR BY OBSERVING THE NATURAL HOST. WE HAD FOUND THE HOST OF THE FOLLOWING, YELLOW SAND SHELL ON GARPIKE, LAKE MUCKET, ON THE BASSES AND PERCHES, BUTTERFLY SHELL, ON THE SHEEPSHEAD, WARTY-BACK ON CHANNEL CATFISH, MISSOURI NIGGERHEAD ON THE STURGEONS. AT LENGTH ONE DAY MR. THADDEUS SURBER DISCOVERED THE GLOCHIDIA DEVELOPING ON THE GILLS OF RIVER HERRING WITH FISHERMEN BROUGHT IN. OTHER NAMES SKIPJACK, POMOLOBUS CHRYSOCHLORIS RAFINESQUE. WE TRIED TO INFECT THE FISH ARTIFICIALLY BUT WITH NO SUCCESS AS WE FOUND THAT THE FISH DIED AS SOON AS THEY WERE CAUGHT AND INTRODUCED INTO TANKS BY THE METHOD USED WITH OTHER FISH. ONE OR TWO SEASONS SUBSEQUENTLY WE RECEIVED WORD THAT OUR FISHING CREW AT LAKE PEPIN, MINNESOTA, WERE CATCHING QUITE A FEW SKIPJACKS. WE THOUGHT WE MIGHT TRY A PLAN PROPOSED OF INFECTING THE FISH WITHOUT REMOVING THEM FROM THE WATER.

WE WENT TO LAKE PEPIN AND CONSTRUCTED A POUND MADE OF A FISH NET PLACING IT IN A SHELTERED PLACE NEAR THE BEACH WHERE THE SEINE WAS BROUGHT IN. ORDINARILY THE US. FISHERIES CREW INFECT THE FISH IN A TANK HOLDING 3 3/4 BARRELS OF WATER, FOR THIS EXPERIMENT THE HERRING WERE TRANSFERRED BY HAND OR DIP NET TO THE TANK AND TAKEN, WITH THE LEAST POSSIBLE DELAY, IN A GASOLINE LAUNCH TO THE POUND. DURING THIS RUN, WHICH TOOK 5 MINUTES, INFECTION WAS CARRIED ON, THE GLOCHIDIA HAVING BEEN PUT INTO THE TANK PRIOR TO THE INTRODUCTION OF THE FISH. IN THIS RUN WITH THE LAUNCH THE TANK WAS KEPT COVERED TO KEEP OUT THE LIGHT AND TO REDUCE THE FACTOR OF FRIGHT. WE SUCCEEDED IN CONFINING TWELVE OF THE INFECTED FISH IN THE POUND. UPON COMPLETING THE INFECTION MR. TEACHOUT, FOREMAN OF THE CREW, WAS LEFT IN CHARGE OF THE FISH IN THE POUND. IN ACCORDANCE WITH INSTRUCTIONS, AT STATED INTERVALS HE KILLED FISH AND FORWARDED THE GILLS FOR EXAMINATION. THREE SHIPMENTS WERE MADE, THE LAST BEING TEN DAYS AFTER THE LAST INFECTION. EACH LOT SHOWED INFECTION AND THE LATEST SHOWED CONSIDERABLE DEVELOPMENT OF THE YOUNG MUSSELS. IN THESE WHEN PREPARED FOR MICROSCOPIC EXAMINATION THE FOLLOWING ORGANS, LIVER, ADDUCTORS, FOOT AND GILL PAPILLAE, WERE VISIBLE. EIGHT DAYS AFTER THE LAST SHIPMENT OF GILLS FROM THE IMPOUNDED FISH, A REPORT WAS RECEIVED THAT THE REMAINING POMOLOBUS HAD ESCAPED. THIS UNFORTUNATE OCCURRENCE PREVENTED THE DETERMINATION OF THE FULL PERIOD OF PARASITISM. BUT THE PERIOD HAS BEEN DETERMINED IN OTHER SPECIES AND HAS BEEN FOUND TO BE TWENTY-ONE DAYS UNDER LIKE CONDITIONS VARYING SOMEWHAT ACCORDING TO THE TEMPERATURE.

(CONT. ON NEXT PAGE)

TWO VIVIPEROUS MOLLUSKS (CONT.)

THE YOUNG OF OTHER SPECIES WHEN ALLOWED TO BE DROPPED ON A BOTTOM WHERE RECOVERY WAS POSSIBLE, HAVE BEEN RECOVERED AND A SECOND GENERATION OF MUSSELS REARED.

THE SECOND VIVIPEROUS MOLLUSK OF WHICH I WISH TO SPEAK IS THE COMMON OYSTER, OSTREA LUCIDA CARPENTER OF THE PACIFIC COAST. THIS VIVIPEROUS SPECIES HOWEVER IS NOT PARASITIC. THE EGGS EXTRUDED FROM THE OVARY PASS INTO THE MARSUPIAL GILLS BEING FERTILIZED EN ROUTE OR WITHIN THE GILLS BY THE SPERM CELLS BROUGHT IN BY WATER CURRENTS. WITHIN THE GILLS THEY PASS THROUGH THE USUAL EMBRYONIC STAGES TO A BIVALVED FORM SIMILAR TO THE TWO VALVES OF THE GLOCHIDIUM. HAVING REACHED THIS FORM THEY PASS OUT INTO THE OCEAN WHERE THEY SWIM ABOUT FOR ABOUT 30 DAYS AND THEN SETTLE DOWN AS OYSTER SPAT TO DEVELOP INTO THE ADULT OYSTER.

THE QUESTION ARISES AS TO THE END ATTAINED BY THE RETENTION OF THE EGGS WITHIN THE PARENT OYSTER. APPARENTLY THE YOUNG OYSTER IN THE TWO SHELLED STAGE HAS A GREATER CHANCE OF SURVIVAL. ITS ADVANCE DEVELOPMENT GIVES IT MORE PROTECTION AND SHORTER TIME BEFORE REACHING THE GREATER PROTECTION OF A THICK SHELL.

Contribution from the Allan Hancock Foundation, University of Southern California.

A PUZZLE SOLVED BY A FOSSIL

DURING THE MEETINGS OF THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE HELD AT THE UNIVERSITY OF SOUTHERN CALIFORNIA LAST YEAR I MET DR. S. STILLMAN BERRY AND ASKED HIM TO STOP IN AT MY LABORATORY. I HAD SOME MINUTE SHELLS THAT LOOKED LIKE AXINOPSIS SERICATA AND FOUND ASSOCIATED WITH THEM, (IN 250 FATHOMS OFF SAN PEDRO). BUT THEY WERE A DIFFERENT SPECIES I WAS SURE. DR. BERRY RECOGNIZED THEM AT ONCE AS A GENUS AND SPECIES THAT HE HAD DESCRIBED AS FOSSILS FROM THE HILL-TOP QUARRY, LOWER PLEISTOCENE IN SAN PEDRO, CALIFORNIA. HE NAMED THEM ADONTORHINA CYCLIA. THE NAME IS DERIVED FROM THE GREEK PREFIX A - WITHOUT + ODOUS, TOOTH, + RHINE, RASP OR FILE, AND HAS REFERENCE TO THE PECULIAR ROUGHENED HINGE PLATE. THE SPECIFIC NAME CYCLIA FROM THE GREEK KYKLIOS, CIRCULAR, AND REFERS TO THE SHAPE OF THE SHELL.

THIS LITTLE SHELL LESS THAN 3 MM. LONG IS PLACED TENTATIVELY IN THE FAMILY THYASIRIDAE. THE SHELLS WERE COMPARATIVELY FRESH SO THAT WE HAVE HERE PROBABLY A LIVING REPRESENTATIVE OF THE FOSSIL FORMS NAMED BY DR. BERRY.

Contributions from the Allen Hancock Foundation, University of Southern California, Los Angeles, California.

QUOTING FROM A LETTER OF MAXWELL SMITH, FLORIDA: "PERHAPS YOUR CLUB MEMBERS WOULD BE INTERESTED IN HEARING ABOUT A PERFECT BACKGROUND COLOR FORSPECIMENS. I HAVE ABOUT COMPLETED THE PAINTING OF ALL WOOD DRAWER INTERIORS AND ALSO ALL PAPER TRAYS (INTERIORS AND SIDES). HAVE USED SAPOLIN FLAT, SUEDE COLOR AND WHITE, EQUAL PARTS. ON DARK COLORED PAPER TWO COATS ARE NECESSARY. THE RESULTS ARE REALLY BREATH TAKING. I ONLY WISH THE WORK HAD BEEN DONE YEARS AGO. THE ARTIST-NATURALIST, DR. MANSON VALENTINE OF HIGHLANDS, NORTH CAROLINA, HELPED ME CHOOSE THE COLOR.

NEW PUBLICATIONS RECEIVED

Recent Lymnaeidae, Their Variation,Morphology,Taxonomy,Nomenclature, and Distribution. By Bengt Hubendick. Stockholm.
This is a remarkably fine monograph- large 4to 223 pages, and 5 plates, and 369 text figures. A synonymic list of world wide species presumably complete is included. The great care and study devoted to the anatomical work is obvious.
Certainly all interested in fresh water mollusks will wish to have this work. It is available immediately from John Q. Burch- postpaid $7.00.

" Gloria Maris" Shells of the Malaysian Seas is the title of the new book from Amsterdam. The text is by Mrs. W.S.S. van Benthem Jutting, Curator of the Museum. The magnificent photographs are the work of Mr. Paul Bessem. 1952 Amsterdam.
This book is ready for immediate delivery and may be had from John Q. Burch for $3.75.

" The Sea Around Us" by Rachel L. Carson has maintained the place as the best seller in non fiction in the United States for many months. This book is intensely interesting not only to the serious student but as well for the layman. $3.50
" Under the Sea Wind" by the same author has just been published. Without question it will also enjoy a tremendous sale. $3.50.
Both books available for immediate delivery from John Q. Burch.

Journal of Conchology Vol. 23, No.8 Feb.,1952. There are many fine papers in this issue as usual but none seem to bear upon the fauna of this coast. Some of the articles are: The Shell Collec--tions of Sir Hans Sloane, Bart.(1660-1753). With digressions upon the books and people connected with them.;Lauria cylindrica (da costa) monstr. sinistrosum- B Colville; Snails feeding on Equisetum- R.B. Benson; A remarkable form of Fausulus- K.H. Barnard; Planorbis acronicus Ferussac in a Holocene deposit in Surrey-M.M. Howard; Remarks on the late Mr. Winkworth's notes on British Marine Mollusca- H. Lemche; Further notes on Charonia lampas(L.)- B.S. Kisch;Divaricella in Sicily: a correction; A new species of Pomacea from Bolivia- W. Blume and T. Pain; Truncatellina cylindrica (Ferussac) in Norfolk- A.G. Davis; Clausilia dubia Draparnaud in Curlew pellets- N.V. Mendham;Mollusca at high altitudes in the Scottish Highlands- A.W. Stelfox; A propos de la faune malacologique du Lac Kivu- E. Darteville; Additional notes on Northern Helicella- H. Schlesch.

Memoirs of the National Museum of Victoria, Melbourne,Australia No.17. In this memoir the results of the Grimwade Expedition to South and Western Australia, Aug.-Sept.,1947. Among large papers on other groups there is " Land Mollusca of the Russel Grimwade Expedition" By J. Hope Macpherson, Conchologist of the National Museum of Victoria and in addition a very large article " A Systematic List of the Marine and Estuarine Mollusca of Victoria" By J. Hope Macpherson. This annotated checklist is of obvious value- pages 107-185 inc. Whether it is available or not other than in the complete memoir is not known.

Fisheries Newsletter- Australia- Jan.,1952. Contains a short paper with figures of Trochus niloticus and T. maximus,both shipped commercially for pearl shell.

" Studies on the Nonmarine Mollusca of Yucatan" By Harold W. Harry Occasional Papers of the Museum of Zoology, Univ. of Michigan. This is a carefully written and interesting work , 34 pages, 3 text illustrations and charts.

Susceptibility of the Snail Biomphalaria Boissyi to Infection with certain strains of Schistosoma mansoni By Emile T. Abdel-Malek, Am.Jr. Trop, Med. Vol.30, No.6

The Mussels of the Mississippi River By Henry and Annette van der Schalie. The Amer. Midland Naturalist Vol.44, No.2

Ecological Aspects of Stenotrema hirsutum (Say) in the Region of Ann Arbor, Mich. By C. Bruce Lee The Amer. Mid. Nat. vol.47,No.1

Succinea vaginacontorta (Sec. Calcisuccinea), A New Amber Snail from Kansas By C. Bruce Lee. Occ. Paps. Mus. Zool.,Univ. Mich.

Vanishing and Extinct Colonies of Tree Snails, Liguus fasciatus, in the vicinity of Miami, Florida By Frank N. Young. Occ. Paps. Mus. Zoo., Univ. Mich., April 27,1951.

" A Study of an Intermediate Snail Host (Thiara Granifera) of the Oriental Lung Fluke (Paragonimus) By R. Tucker Abbott. Proc. of the U.S. Nat. Mus. vol. 102, pp 71-117, pls. 8,9, figs 32-45 1952.

Sources of Information on Molluska- Prpared by the Division of Mollusks U.S. Natl . Mus. 1952 Mimeographed.

" The Barnacles of California (Cirripedia) By Ira Edmund Cornwall The Wasmann Journal of Biology, Vol.9, No.3, Fall 1951. This is a very comprehensive and well illustrated paper on this group.

" Illinoian and Wisconsinan Molluscan Faunas in Kansas" By A. Byron Leonard. Univ. of Kansas, Paleontological Contributions, Feb. 15,1952. Pages 1-38, Plates 1-5, Figs. 1-15.

" Mollusca of the University of Kansas Natural History Reservation" By A. Byron Leonard and C. Raymond Goble. Univ. of Kansas Bulletin Vol. 34, Pt. 2, Feb. 15,1952 Pages 1013-1055 , 4 pls.

" Stratigraphy of the Late Pleistocene Loesses of Kansas" By John C. Frye and A. Byron Leonard- " Petrography of the Peoria Loess in Kansas" By Ada Swineford and John C. Frye- " Stratigraphic Zonation of the Peoria Loess in Kansas" By A. Byron Leonard. Journal of Geology, Vol. 59, No.4, July 1951.

" Report of the Committee on a Treatise on Marine Ecology and Paleoecology" 1950-51 Harry S. Ladd,Chairman- Vice-Chairmen Gordon Gunter, for Biology- Kenneth E. Lohman, for Geology- Roger Revelle, for Oceanography. National Research Council, 2101 Constitution Ave., Washington 25, D.C. 83 pages.
The excellent reports of the Division of Geology and Geography are well known. Available now from the N.S.C. for $1.00.

Correspondenblad van de Nederlandse Malacologische Vereniging. Nos. 43 and 44 Jan. and Feb.,1952. The monthly papers of the Netherlands society.

Nuovo revisione delle conchiglie marine di Sicilia- By Dott. Ing. Ottavio Priolo.

This work is in 3 parts 1948-51 , from Atti della Academia Gioenia di Scienze Naturali in Catania. The figures in the plate of the Calliostoma group are clear and interesting.

" Quaternary Fossils from the Sassen-Area in Isfjorden, West-Spitsbergen (The Marine Mollusc Fauna) By Rolf W. Freyling-Hanssen and Finn A. Jorstad. Oslo,Norway,1950. This paper is in English, 85 pages, maps and charts.
" Basalkonglomerat ved Stranddal i Ryfylke" - By the same author
" Foraminiferer og foraminiferforskning"
" Litt Ryfylke-geologi"
" Changes of Sea-Level in West Spitzbergen: A New Interpretation"

" Eine afrikanische Schnecke als ein sich ausbreitender Schadling in Pflanzungen warmer Lander " By Caesar R. Boettger " An Af ican Snail which is racidly spreading pest in plantations of hot countries". This is another well written paper in German on the Achatina fulica. In the issue of Abhandlungen der Braunschweigischen Wissenschaftlichen Gesellschaft 1951.

" Circulares Del Museo y Biblioteca De Malacologia De La Habana" Editor: M.L. Jaume, 13 No. 351, Vedado, Habana,Cuba- Price $1.50 per 100 pages. We have before us the issues from Oct. 1951 to March 1952 pp 436 to 527 inc. These papers are mimeographed and contain a great deal of very valuable information. Among a vast lot of other interesting material we note " Molluscos Terrestres De " El Palenque", Matanzas" By Miguel L. Jaume. This annotated check list should be of real value. and " Nuevas Formas De Liguus De Cuba" By Miguel L. Jaume. In this paper Dr. Jaume describes many new subspecies of Liguus, and in addition is " Catalogo De Los Molluscos Del Genero Liguus" . This is an annotated list of the species.

This series of papers is well worth while and should be in all conchological libraries.

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Ronald Winkworth 1884-1950. For many years Winkworth devoted his life to the study of malacology. He served the Malacoligical Society as president, honorary editor and member of council. He was president of the Conchological Society; Vice-president and member of Council of the Linnean Society; and founder member of the Society for the Bibliography of Natural History, and of the Systematics Association. Other honors were given to him in large numbers and his published works are too extensive to attempt to list here.

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Dr. Wendell P. Woodring of the U.S. Geological Survey, has been awarded the Penrose Medal of the Geological Society of America. Dr. Woodring was honored for his research in the West Indies and Central and South America.

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The extensive collection of the late A.M. Strong has been presented to the Natural History Museum of San Diego by Mrs. Miriam S. Clark, his daughter. Dr. Joshua L. Baily Jr. is now arranging the collection for transfer to the museum collection. This with the Lowe,Baker and other great collections make the

Natural History Museum of San Diego one of the really important study museums of the nation.

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Marshall Sohl Jr. who has been in the United States Army in the Philippine Islands for the past several years is back for a month's leave, and we had the pleasure of having him with us at the meeting of the Conchological Club on April 1. Mr. Sohl sent back a great many very fine and rare shells while he was in the Philippines especially from Zamboanga.

Marshall Sohl has been publishing some extremely interesting papers on shells in " The Surveyor" the army publication of the 29th Engineers and is published twice a month. Sohl's articles have related to the folklore of shells, a subject about which very little has ever been published. A few excerpts will indicate their interest:- " One of the most interesting shells is the " bagu-bagu", which alone has many legendary songs and stories. In one of the eight Moro tongues " cubagu" means " without a shirt on one's back" and it gets its name from the manner nature provided for it to protect itself. When this cowry shell is first seen by a diver below loose rocks on a dead coral reef it is covered entirely with a mantle which reminds one of the finction of the eyelid in closing over the eye.The shell cannot be noriced because of this protective camouflage, but once it is disturbed it shrinks slowly into its shell. .... One of the songs about this shell is called " Amu Kut Bagù" and it is sung by the Lawa'an Gypsy tribe. It is a high shrill chant and sounds something like Swiss yodeling.

In the issue of Feb.10,1952 " Sohl in Filipiniana" " Sulu Pearl Diver's Dread- The Giant Man-Eating Clam"

The first thing that comes to one's mind when he hears the name " Giant Man-Eating Clam" is the pearl diver, 20 fathoms below the tropic sea, with his foot caught in the iron vice-like jaws of the giant " Tridacna". And this is usually also the place where our knowledge stops. Through years of study of shell life around Zamboanga,Mindanao, I have accumulated some other information on this large species of clam which I'd like to pass on to you.

Stateside, these clams are often found in churches where they are used as baptismal fo8nts. The states are the main shipping outlet for the shells, and by the time they arrive there, what with crating and shipping costs, they are worth well over 50 dollars. In Zamboanga, the meat of the clams is sold in the markets, an animal of 20 pounds costing about 3 pesos. The shell itself has been used by primitive man for centuries as a raw material for manufacturing tools and utensils, and to this day, the clam is still used by Pacific Islanders for making hatchet heads. The clam shell is also a source of lime fertilizer and other uses.

The Giant Clam usually hides in a crevice in a coral reef and is so well camoflauged that it can be found only by an expert. When the clam opens under water, it's color rivals that of a peacock's plumage. Actually, many of the various types of clams opened under water are some of the most colorful animals in nature, but when they are taken out of water they lose their vivid colors and become greyish white and black.

A large clam will weigh over 500 lbs. and grow to a diameter of more than five feet. But though it is such a large immobile animal it can move very rapidly. When a fish or other marine animal

enters the shell, the relaxed muscles of the Tridacna are alerted and will slowly tense- then the clam will speedily snap shut, with its prey entombed inside.

In some parts of the Philippines like the Bolinao Peninsula in Pangasinan Province these large shells will be found on the mountain tops. The natives usually have invented many stories as to how the shells got there, but they are more fancy than fact. Actually, at one time, the area was sunk beneath the sea and then rose during an upheaval.

The native name for the giant clams is " Taclobo". Near the lighthouse in Bolinao is a little sitio, called Taclobe, and it is literally covered with these shells. There are very many place names in the Philippines with this word forming at least part of the name, the most outstanding of course, being the citidel of Leyte, Tacloban.

The Giant Man-Eating Clam is found in shallow water down to 30 fathoms deep. Years ago, it was possible to haul them off the reefs with carabao sleds, but they are now quite scarce and can be found only in distant places away from inhabited areas or in very deep water.

One of the tales attributed to these clams by natives of the Sulu Sea describes a clam that was so large that it once attached its body to a Spanish ship and the suction force it created was of such magnitude that it imprisoned the keel of the ship and held it fast. The native name of the clam is " Kima Antulang".

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Dr. A. Myra Keen, Dept. of Geology, Stanford University " Just a brief note to tell you of my latest adventure. One of the doctors once said I had a talent for getting ailments, and this time I really outdid myself. Ever hear of a retinal detachment? Well, that's what happened suddenly, for no apparent reason, the first of this month. Part of the field of view of the right eye blacked out. I was rushed to a specialist in San Francisco, the only man in this region capable of the delicate operation necessary to restore sight. Although the operation, physically, is no serious one, the recovery period is slow. After three weeks in the hospital in San Francisco I am now home but must remain quiet for another six weeks. I will be permitted to return to work some time in May. Meanwhile I must keep my eyes rigid and do nothing such as reading or looking at scenery while riding, that will cause the eyes to move. (I am writing this with my eyes shut, which accounts for all errors). People who write to me about shell problems during the next two months will just have to be patient about the long delay in replying. The University has been very generous and considerate, and I never knew I had so many friends. Well, the net result is I get two months of real rest."

Dr. Jeanne Schwengel, Scarsdale,New York has also been in the hospital recovering from a fall on the ice and a very serious arm injury resulting in several broken bones. We hear that she is now on the road to recovery after considerable difficulty.

H.A. Edwards, Los Angeles and our active member has also been in the hospital for an operation but is now home although still under treatment. We all hope that H.A. will soon be with us again.He is really missed.

Dr. G. Dallas Hanna and Dr. Leo G. Hertlein were visitors in Los Angeles last week and we enjoyed a visit with them and getting all the news from the California Academy and the Bay region.

Dr. Curt Teichert, University of Melbourne, Melbourne,Australia was in for a visit last week, and we thoroughly enjoyed the news from Australia. We have a large number of his publications on cephalopods in our library.

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If any of my correspondents should happen to have specimens of any of the following genera I will be very happy to hear from them and assure them of a very liberal exchange. They are wanted for a very special purpose. I need 2 specimens of any species.

Hyriopsis- fresh water pelecypod
Hemistomia- a genus of Rissoidae
Homalogyra-
Hindsiella-
Hybocystis-
Helicarion-
Horea-
Hyalimax-
Hirasea-
Helicigona-
Helicodonta-
Hemidonax-
Heterocardia-
Humphreya-
Hamites- a fossil cephalopod
Thalamus- " "
Trigonosemus- " brachiopod
Halia-

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The Conchological Club of Southern California met at the usual place and time April 1. Miss Ruth Coats had the program and gave her recording of the " Shell Orchestra" which was given to the A.M.U. meeting in Buffalo, N.Y. It was very interesting.

Marshall Sohl gave some of his experiences about the use of the shells for musical instruments etc. in the Philippine Islands.

The next meeting of the Conchological Club will be on May 6 at the usual time and place. Members are expected and visitors always welcome.

MINUTES of the CONCHOLOGICAL CLUB OF
SOUTHERN CALIFORNIA, held APRIL 1, 1952, at LOS ANGELES
MUSEUM, EXPOSITION PARK, LOS ANGELES, CALIFORNIA.

CALLED TO ORDER: The President, Dr. Arthur Howard, called twenty-one members and five guests to order at 7:40 P.M. The guests were welcomed and invited to come again.

DUES: Dr. Howard brought to our attention that since the Club dues have been raised to 50¢, there are some members that owe 25¢ on their 1952 dues. These will receive their membership cards when their dues are fully paid. Kindly contact the secretary if in doubt about your 1952 dues.

REPORT OF COMMITTEES:

FIELD: Mr. L. C. Bessom reported a low tide of -.28 on Saturday April 26, 1952 at 4:30 P.M. The new 1952 tide book will be out this month. The Standard Oil Company (Marine gas) put out a very good tide book.
Mr. E. P. Chase reported on The Venomous Cone Shells, by R. Tucker Abbott, M.S. (The George Washington University).

PROGRAM: Miss Ruth Coats, Chairman, expressed her wish for the programs to be interesting and of a varied nature, and asked for suggestions from the Club members.

SPECIAL COMMITTEE: Mrs. John Q. Burch reported that Mr. Edwards is still receiving treatments following his operation.
Dr. A. Myra Keen has had a very serious eye operation but is improving.
Mr. Donald Cordry, in Mexico, is ill, having trouble with hiseyes, and is not able to keep up with his correspondence.
Dr. W. O. Gregg sends Greetings to the Club. Because of Tuesday evening duties has not been able to attend the meetings for the last four months.

SPEAKER: Miss Ruth Coats brought the Club a very interesting and unusual wire recording that she obtained while attending the AMU meeting at Buffalo, in August 1951. This recording was taken from a tape recording given by Mrs. Gertrude Villforth Musial, of a Shell Orchestra. Mrs. Musial, a member of the Buffalo Conchological Club, received this recording from her father in Germany, who was a missionary in New Guinea. The shells used were Tritons and consisted of 17 notes and half notes. It was interesting how the Conductor directed the "Triton Pipe Organ". As the natives were unable to read music, the Director would tap the native on the head when he was to blow his shell (sound his note). Several hymns were played. We all felt we had been to a most unusual organ recital. Miss Coats also gave us a nice recording of Tyrian Purple, by Dr. T ucker Abbott, from the Smithsonian Institute.

After afew remarks by Miss Coats, our guest, Mr. Marshall Sohl, Jr., gave us an interesting talk on his experienceswhile in the Philippine Islands, telling us the different methods the natives use in blowing shells. Other members told stories of how shells have been used.

Meeting adjourned at 9:10 P.M.

Signed: B essie Falconer, Secretary
236 1/2 Bailey Street
Los Angeles 33, California

MINUTES 120
MAY & JUNE 1952

CONCHOLOGICAL CLUB OF SOUTHERN CALIFORNIA

Subscription $2.50 per year

We are now meeting the first Tuesday of every month at 7:30 P.M. at the Los Angeles Museum, Exposition Park, Los Angeles California. All interested persons are cordially invited.

Please mail all news to your editor- John Q. Burch,
1584 W. Vernon Ave.,
Los Angeles 62, Calif.
Telephone Ax 3-5710
Home Ax 2-7965

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* Note* We have had a few inquries- Minutes 118 were mailed with Minutes 117.

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Publications Received

A Beginners Guide to South African Shells by K.H. Barnard. This is a nicely bound cloth book of 215 pages , 32 full page plates several in color, some text figures. This should be a very handy book. There are so few available works on this fauna. It is to be regretted that so many books recently published fail to give the name of the authority following the name. The author here does give the scientific names but not the authorities. However, the plates are clear and the descriptions brief but clear.

Antarctic Pelecypods by Tron Soot-Ryen, Oslo 1951. An interesting booklet of 46 pages and one plate. From Scientific Results of the Norwegian Antarctic Expeditions 1927-28 et SQQ, Instituted and Financed by Consul Lars Christensen.- No.32.

Astarte- Short Papers published by the Zoological Department Tromso Museum, Tromso, Norway.
No.1, Dec.5,1951- New Records on the Distribution of Marine Mollusca in Northern Norway by T. Soot-Ryen. (Con. on page 6)

MINUTES OF THE CONCHOLOGICAL CLUB OF
SOUTHERN CALIFORNIA, held May 6, 1952,
7:30 P.M., at the Los Angeles Museum,
Exposition Park, Los Angeles, California

Called to Order: The President, Dr. Arthur Howard, called fourteen members to order at 7:30 P.M.

Report of Committees: Nomenclature: Mr. E. P. Chace reported on two new publications: 1. The Snail Hosts of Bilharzia in Africa, by Alan Mozley. 2. Recent Lymnaeidae, by Bengt Huhendick.
Dr. A. Howard reported on an article about the Santa Barbara Indian skulls that have been found. The skulls were painted red. These indians lived on red abalone.

Program: In the absence of Miss Ruth Coats, Mrs. John Burch reported. As Miss Coats lives quite a distance from Los Angeles, it is difficult for her to make necessary contacts in working out the programs for the Club meetings. The members were asked to make suggestions, or volunteer to give a paper. For the June meeting Mrs. Burch suggested having a round table discussion, the members to bring their shells that are problems to them. All felt this would be a very interesting and profitable meeting.

Special Committee: Mrs. John Burch reported that the cabinet is ready for use except for a lock, and that will be on before our next meeting.
The Club members were sorry to hear of the death of Mrs. Belle Whitmore, of Redondo Beach, on April 28, 1952.

Speakers: (1) Mrs. John Burch gave a very interesting review of "The living Cypraeidae of the Western Hemisphere", by William Marcus Ingram, Cincinnati, Ohio. A copy of Mrs. Burch's paper will appear in an early number of the Minutes.
(2) Mr. Morris Caruthers placed before us a map of Morro Bay showing the places he collected shells prior to 1923.

Meeting adjourned at 9:40 P.M.

Signed: Bessie Falconer, Secretary
236 1/2 Bailey St.
Los Angeles 33, California

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A NOTE ON JAUME'S RECENT CATALOGUE OF THE GENUS LIGUUS

Appearing in the March, 1952, issue of "Circulares" published by the Sociedad Malacologica "Carlos de la Torre" of Havana, Cuba, is an article entitled "Catalogo de Los Moluscos del genero Liguus." The author, the well-known Cuban conchologist, Miguel L. Jaume, lists five species and their subspecies as follows:

L. virgineus confined to Haiti and the Dominican Republic
L. vittatus and two subscpecies from Cuba
L. flamellus and six subspecies from Cuba
L. blainianus and eight subspecies from Cuba
L. fasciatus:The typical species - and 57 subspecies from Cuba. 34 subspecies from the Isle of Pine and one subspecies found in both Cuba and Florida.

Forty-four subspecies are listed, but placed in synonymy.

Jaume's catalogue includes the same species and subspecies listed by William J. Clench in his catalogue published in 1946, and in addition, names 39 subspecies described more recently. Of these, Sanchez Roig described 19, Jaume 16 and Clench, Pequeno, Alcade and Nodal one each.

Howard R. Hill

FIGHTING THE AFRICAN SNAILS

The following is sent to us by Walter J. Eyerdam, of Washington, being an excerpt from the Honolulu Star News:

"Editor Star Bulletin: It is not uncommon for me to clean out several hundred African snails from my yard each day and I am thoroughly disgusted with trying to eradicate the same by using the poisonous stones that are given away free.

"The stones not only clutter up my yard and raise havoc with my lawnmower but as a solution to killing this pest have proven a waste of time and effort.

"I have heard that arsenic spraying is the only sure way of killing these pests and if this is so, why aren't the people advised of such by the proper authority. If conditions are allowed to remain as is: the snails will eventually take over the community.

"With the cost of living so high I might try feeding them to the family as one way of getting rid of them. Let's have some dope on this."

Signed: J. Osaka, Kaneohe, Oahu

"Editor Star Bulletin: All these comments on the African snail problem especially in Kaneohe are well founded. The fact that the arsenic rock when used proves of little success is true. I have tried using them and I have also spent considerable money in purchasing arsenic to use as a spray and have found this method very effective.

"I called at the Board of Agriculture offices several months ago and it seems that they are propagating a beetle that originates in Africa and will eventually be put in the field to combat the snail.

"You should see the thing. It looks and behaves like something out of the Horror Magazine; about the size of a large cockroach and mean and vicious looking. I'd hate to have one of them run up my pants' leg when clearing the garden of weeds. It willbe several years, I am told, before this miniature Frankenstien is turned loose and in the interim the snails will continue to gobble all and my neighbors' vegetation.

"The arsenic spraying will definitely control this pest as I have tried it so why doesn't the Board of Agriculture use this method instead of fooling with the stones.

"Yours for less snails and a more sensible program of control.

Signed: ThomasB. Laver,
365 Lilipuna Rd. Kaneohe, Oahu

"Editor Star-Bulletin: I have just come in from doing a bit of yard work and the kids and I picked up approximately 1,200 snails. This is a semi-monthly chore, and believe me, it is most discouraging to know that the authorities responsible for the control of the African snail are somewhat lax, I believe, in their duty.

"I have tried using the arsenic rocks and they are no good. I've seen quite a few articles re: the use of arsenic spray. Why doesn't the Board of Agriculture and Forestry utilize its staff and equipment to follow this method through? It seems that they are rock happy. If you could see the snails climbing all over my fruit trees and in the garden, you would appreciate the fact that this is a

serious situation and not something to be passed over lightly.

"If Mr. Lennox of the Board is the efficient public servant you have said he is in the past editorials, why doesn't he do something about this? My question to him is this. If the use of arsenic spray is more effective, why does he advocate the use of the rocks?

Signed: George Rawlins
1420 Kamehameha Highway

GASTROPODIA

Glenn R. Webb, of Ohio, Illinois, writes as follows:

"This is merely a quick note to give you the latest newsin regard to a new journal on snails which is soon to appear. We are calling it by the name GASTROPODIA It is dedicated to the study of snails, their culture, conservation, natural history and anatomy. Initially it will be sold as issued until we can determine publication costs. It is planned to issue 8-1/2x11 (regular bond size) by parts irregularly, dated as issued, as MS accomulates and our publication funds permit. Would appreciate your passing the word around among the Southern California Conch Club members. I will send a copy of the first one as soon as it is off the press. Wish to build up a mailing list of subscribers in advance. Will drop them a card when issues appear stating cost (like separates)."

NAVY TO BUILD RESEARCH LAB AT WOODSHOLE

Allyn G. Smith sent in the following clipping on the above subject:

"Construction of a laboratory for oceanographic studies at Woods Hole, Washington, will begin early this Spring, the Navy's Bureau of Yards and Docks announced today (January 5,1952).

Navy officials said a contract has been awarded to E. Gunnar Peterson of Falmouth for preparing plans and specifications for the $600,000 construction. The Navy said that Woods Hole will be one of the nation's two research centers where full-scale oceanographic studies will be conducted in the open ocean.

Naval civil engineers said the building will make it possible to greatly expand the Navy's research program and will permit closer cooperation with studies being made by the WoodsHole Oceanographic Institution.

The three-story structure will be of steel and masonry construction with specially installed fixtures and equipment for research. It will house laboratories, an administration department, a lecture room, file vaults, a photographic dark room and machine shops.

The first session of the 82d Congress last Fall appropriated approximately $800,000 for acquiring land, planning and construction of the research building."

SHOAL OF UNUSUAL SNAILS INVADES WATERS OF LAKE IN CENTRAL PARK

Allyn G. Smith, of Washington, also sent clipping on the above subject:

"A shoal of unusual snails, possibly of a species alien to this country, have invaded the lake in Central Park. Yesterday afternoon cast-off snail shells by the hundreds were visible around the edges of the frozen lake, which is now at its winter low, about four feet below the summertime high, or boating level.

Specialists at the American Museum of Natural History and at the Dept. of Agriculture's Bureau of Entomology and Plant Quarantine were unable to definitely identigy representative specimens from the site. The strange shells are about the size of golf balls. The shell material is translucent. It is pale green with three dark brown bands running with the spiral. The threat of a plague of snails in the United States has frequently been voiced by scientists, farmers and quar-

antine officials. A single snail in five years can have 11,000,000,000 offspring. The average snail can eat a head of lettuce in a day. Snails can spread deadly human diseases. Last summer, Congress tightened up quantine laws to allow the Dept. of Agriculture, for the first time, to thoroughly search cargoes from abroad in efforts to keep out foreign snail species.

The infestation in Central Parkcan in no sense be termed a plague. Although a multitude of discarded snail shells can be observed around the lake, the density is far below that reported from the Marianas Islands of the Pacific following World War II. The Japanese introduced giant snails into Guam, Saipan and Tinian for food purposes. Later they multiplied prodigiously. The Navy, the National Research Council and the Smithsonian Institution are still trying to stem the tide. The danger is that a foreign species, introduced into a strange ecology, meets no natural enemies at first. Under these circumstances, snails might spread as rabbits did in Australia or as the English sparrowhas spread here.

At the American Museum of Natural History there were three guesses about the identity of the Central Park specimens: it may be a Japanese snail, one of European origin, or it may be a variant of a species long known in the Eastern United States. The museum's reference collection of preserved specimens is at Harvard University where Dr. William J. Clench, Harvard's mollusk expert, is at work on it. John C. Armstrong, assistant curator of living invertebrates consulted his colleagues in the department and the available literature on snails, in the abscence of the reference collection, which might make the identification certain.

All the Central Park snail shells studied appear to have three brown bands running along the spiral to the aperature where the animal's foot, mouth, eyes and nose protrude. The snail was identified as one of the viviparus genus, which bears its young alive, complete with shells (ouch!)

An American snail, Vivipara contectoides, has four brown bands.

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THE AMERICAN MALACOLOGICAL UNION, PACIFIC DIVISION
FIFTH ANNUAL MEETING

UNIVERSITY OF SOUTHERN CALIFORNIA, OS ANGELES, CALIFORNIA
FOUNDERS HALL, ROOM 133 - JUNE 20, 21, 22, 1952

ACCOMMODATIONS may be had on the campus at: TOWN AND GOWN
666 West 36th Street
at $2.50 per night. Please let us know as soon as possible so we may make arrangements for the number of rooms necessary.

ANNUAL BANQUET, June 21, Old Dixie Dining Room, $2.50 per plate,
4267 So. Western Avenue
Please make banquet reservations well in advance with B anquet Chairman, and advise program chairman of title of paper, time required, projection facilities desired, etc. Be prepared to submit an abstract of all papers to the Program Chairman, or mail in advance to the A.M.U. Secretary.

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Los Angeles 7, California

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1584 W. Vernon Ave.
Los Angeles 62, California

Program Chairman
Miss Ruth Coats
3846 Skyline Road
Carlsbad, California

A.M.U.P. WILL WELCOME EASTERN VISITORS

Several of the species discussed by Dr. Soot-Ryen are also well known from the Northern Pacific of this coast.
No.2- Astarte, April 25,1952- Studies on Cepaea hortensis (Mull.) in Northern Norway. by Helen Rost 10 pages 4 figures.
All of the above papers are well written in English.

Proceedings of the Malacological Society of London- Vol. 29, part 4 9 May,1952. This entire issue is devoted to the paper " Some genera and subgenera, mainly new, of Mesozoic Heterodont Lamelli--branchs By R. Casey.

Der Erbgang der Inversion bei Laciniaria biplicata MTG.(Gastr. Pulm.) Nebst Bemerkungen zur Biologie dieser Art (Mit 2 Abildungen) Von Eduard Degner (Hamburg). Sonderdruck aus Mitt. d. Hamb. Zool, Mus. u. Inst. Bd. 51,1952.
A very thorough wotk in 61 pages.

Occasional Papers on Mollusks - Mus. Comp. Zool., Harvard. Vol. 1, No. 17 " The Scalarium Species Complex (Umbonis) in the Genus Cerion" By William J. Clench and C.G. Aguayo.

Report of the Director-Museum of Zoology- 1950-1951, Univ. of Mich. The Division of Mollusks By Dr. Henry van der Schalie is of interest to us. The Stelfox Collection of Sphaeriidae brought together by Mr. A.W. Stelfox of Dublin,Ireland is now a part of the collection being arranged by the Rev. H.B. Herrington of Keene,Ontario. Another important addition was the permanent loan of the land and freshwater collections of the Royal Ontario Museum. This collection was largely the work of Dr. John Oughton, former curator of mollusks.
Two former students completed their doctoral problems- Dr. Harold Harry on the Carychiidae of Michigan and Dr. Bruce Lee on the biology and relationships of the family Succineidae.

Revista de la Sociedad Malacologica " Carlos De La Torre" Vol. 8 Num.3, April 25,1952. The papers in this issue are:
Land and Freshwater mollusks of Eleuthra Island,Bahama Islands by W.J. Clench; Choromytilus, a new genus in the Mytilidae by T. Soot-Ryen; The Distribution of Zachrysia guanensis (Poey) and its subspecies in the area of Luis Lazo, by M.K. Jacobson; Nuevoa moluscos operculados de Matanzas,Cuba por C.G. Aguayo y M.L. Jaume; El estado juvenil de Strombus gallus Linne por John Finlay; Haplocion yucatanensis (Bartsch) from Coahuila, by R.J. Drake.

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Dr. Harold Harry has resigned his position as professor in the University of Missouri to devote all of his time to a research project with the Limnology Dept., Acad, Sci. of Philadelphia.

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MINUTES 121
JULY & AUGUST 1952

CONCHOLOGICAL CLUB OF SOUTHERN CALIFORNIA

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AMERICAN MALACOLOGICAL UNION - PACIFIC DIVISION

5th ANNUAL MEETING - 133 FOUNDERS HALL, UNIVERSITY OF SOUTHERN CALIFORNIA
LOS ANGELES, CALIFORNIA

June 20, 21, 22, 1952

Registration Fee 50¢

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SPECIAL COMMITTEES FOR 1952 MEETING

Arrangements - Rose Burch   Program - Ruth Coats   Registration - Elsie M. Chace
Hospitality - Bessie Falconer and all members of the Conchological Club of Southern California.

* * * * * *

Applications for membership in the American Malacological Union may be secured through Dr. Wendell O. Gregg, Mrs. Elsie Chace, or by writing Mrs. Margaret Teskey, 144 Harlem Ave., Buffalo 24, New York. Dues are $1.00 a year.

PROGRAM

Friday, June 20

12:00 Registration of members and guests
1:00 Meeting called to order by Chairman Wendell O. Gregg.
Address of Welcome by Dr. Irene McCulloch, Hancock Foundation, Los Angeles
Reply by Dr. Wendell O. Gregg.
Appointment of nominating committee.

PRESENTATION OF PAPERS

Andrew Sorenson, Pacific Grove, Calif.: The Importance of Amateur Nature Students
Prof. Albert R. Mead, Univ. of Arizona: Foreign Mollusks in Arizona
Walter J. Eyerdam, Seattle, Wash.: Solomon Island Megapodes recommended as Destroyers of African Snail Pests. (Paper to be read).

Intermission

E. P. Chace, Lomita, Calif.: Some Problems in Pholads
Dr. A. Myra Keen, Stanford Univ.: West American Tertiary Molluscan Faunas

Notes, Comments, and Experiences by Members and Guests.

6:00 Dinner
7:00 Dr. S. S. Berry, Redlands, Calif.: Memories of the Older Malacologists

Intermission

Prof. Albert R. Mead, Univ. of Arizona: Natives and their Surroundings in the Gold Coast and Nigeria, Africa

PROGRAM

Saturday, June 21

9:30 Business session. Report of Nominating Committee & Election of Officers.

PRESENTATION OF PAPERS

Ralph Olen Fox, Berkeley, Calif: The Northern California Malacozoological Club
Roy L. Morrison, San Diego, Calif: Environmental Change on Molluscan Life in Mission Bay, San Diego.

Intermission

Merton Henshaw, Pacific Grove Museum, Calif.: Some Molluscan Habitats of the Monterey Peninsula
John E. Fitch, Calif. State Fisheries Laboratory: Management Problems of a Molluscan Sportfishery

Luncheon

Mrs. Ruth C. Whitney, Los Gatos, Calif.: South African Acmaeidae
Rev. Elwood B. Hunter, Sitka, Alaska: Mollusca from Sitka,Alaska (paper to be read)

Presentation of Papers (Cont.)

Dr. S. S. Berry, Redlands, Calif.: The Production of Light by Mollusca

Intermission

Helmut Meier, San Marcos, Calif.: Demonstration of Shell Models
H. Arden Edwards, Southwest Museum, Los Angeles, Calif.: The Evolution of Color Patterns in the Mollusks of the Genus Conus

7:00 Banquet at the Old Dixie Dining Room, 4267 South Western Ave.

Waikiki Aquarium, Bishop Museum, and Committee on Natural Sciences for Youth of the Outdoor Circle: Hawaiian Gastropods

PROGRAM

Sunday, June 21

9:30 Business session

PRESENTATION OF PAPERS

William K. Emerson, Univ. of California, Berkeley, Calif.: The Influence of Upwelling on the Distribution of Marine Floras and Faunas of the Pacific Coast of Baja California, Mexico.
Rose Burch, Los Angeles, Calif.: Review of Living Cypraeas of the Western Hemisphere
Dr. Joshua Bailey, San Diego Natural History Museum: A Forgotten Episode in the History of Paleontology (paper to be read)
David K. Baker, San Diego, Calif.: Murex petri

Intermission

Dr. Arthur D. Howard, Hancock Foundation, Los Angeles, Calif.: Some Pteropods of the Eastern Pacific
Prof. Albert R. Mead, Univ. of Arizona: The Status Quo of the Problem of the Giant African Snail (Achatina fulica)

SOLOMON ISLAND MEGAPODES RECOMMENDED AS DESTROYERS OF AFRICAN SNAIL PESTS

by Walter J. Eyerdam

May 10, 1952

Last year while visiting Dr. Yoshio Kondo, at the Bishop Museum in Honolulu, I was impressed in noting his useful research work of experimental studies in trying to solve the problem of controlling the terrible African snail pest Achatina fulica in the South Pacific. With all of the investigations and experimentation to date with specialists sent to Africa to find the natural enemies, it seems that very little has so far been acdomplished. Arsenic stones and arsenic sprays may be OK when used to keep the pests off of well kept lawns, but can hardly be applied with success otherwise for fear of its dangerous toxis effect on humans and on useful animals.

A large Varanns or monitor lizard in East Africa is known to be a voracious feeder on Achatina of various species and its jaws and dentition are so constructed to special adaptation in holding and crushing these large snails. It would be a wonderful idea to introduce such lizards into the infested islands, except for one thing. The great danger would be that the monitor might become also a fearful pest like the mongoose introduced from India to Barbadoes and Jamaica to eradicate rats and poisonous snakes. When their natural prey was nearly exterminated there was a great increase in the population of mongooses which quickly adapted its food habits to include poultry and all kinds of wild birds and their eggs. The Varanns would probably adopt the same food habits when the snails were kept in check because of lack of natural enemies and a necessary food adaptation to insure survival of an increased population. There is a large monitor lizard, Varanns indicus, which is native to the Solomons and has a widespread distribution throughout Indoesia and Melanesia. Undoubtedly it does account for a considerable number of Achatina in areas where the lizard occurs as it is also a snail and an egg eater.

The most promising agent for the control of the African snail pest, and at the same time a very desirable economic asset to any community, is the Solomon Island bush hen or Megapode whose scientific name is Megapodius erimita or Megapodius brenchlevi. It feeds largely on snails, bugs, scorpions, centipedes and harmful insects and worms.

T here are many species of Megapodes in Melanesia and Australasia. It is called the bush turkey or mound builder in Australia. Some species that live in New Guinea build prodigious mounds of leaves and twigs as compost to hatch their eggs. Evidently some of the great mounds are constantly added to by whole colonies of birds for a long period of years as bush hen heaps have been reported to be as much as thirty feet high.

In Dr. Ernest Mayrs' Monograph on the Megapodiidae of Western Melanesia there is no mention of their food habits and there seems to be scant mention in literature on this subject.

As a member of the Whitney South Sea Expedition in the Solomon Islands, collecting large series of all local races of birds for the American Museum of Natural History ih 1929-30, I often shot and skinned bush hends. I usually examined the stomach contents which were mostly crammed with snail shells, many of them still whole and in a fair condition. In one stomach I found two species of land snails that I did not find elsewhere. I am sure that with such

an appetite for snails those birds would go after Achatina fulica in a big way and these snails could well become its ideal food.

Solomon Island Megapodes do not build compost heaps to hatch their chicks as they do in New Guinea and Northern Australia. They have equally strange habits, however. Bush hens should be a distinct attraction in many American zoological gardens as they are in Australia. They would in themselves be a sensation to the public as well as a subject of study to ornithologists.

The bushhen or brush turkey often lives near villages in the deep tangled scrub and can sometimes be seen foraging diligently for food around clearings or native gardens in the early morning. This bird is about the size of a small turkey or large plymouth rock hen, but is much more sturdily built. It is usually dark brown or black and has a pair of enormous feet with heavy claws, especially adapted for digging. Its strangest habit is that of incubation. The hen usually selects a spot in a sandy back beach area exposed to the full glare of the tropic sun. Here she rapidly digs a hole about two feet deep with her steam shovel feet and deposits one egg, whereupon she covers up the hole again and repeats the same operation with each egg laid. In about five weeks the egg is hatched by the sun and the chick immediately digs itself out of the sand into the light of day and flies away to fend for itself without any parental care. Needless to say the Megapode obviously belongs to a very ancient tribe of birds to have retained such reptilian habits.

The bush hens seem to be prolific layers, as the natives in some districts collect considerable numbers of them for food and barter. On one island the birds are semi-domesticated and I have photos showing natives digging out eggs while the bush hen beside them is digging a hole to lay an egg. On this island each family of the neighboring village has staked out a claim as a family plot over the entire nesting area of these birds. This custom has been carried on for many generations so it is really surprising that there are any Megapodes. The natives however probably are wise enough to place a taboo on egg hunting after a certain date to insure a sufficient supply of a normal bush hen population on this island.

I recommend that the Department of Agriculture take a sufficient interest in my suggestion to start an experimental farm on a snail infested island, e.g., New Britain, Guam or Saipan or somewhere in the Hawaiian Islands to raise Megapodes on a large scale to be fed on Achatina and its eggs. I know where the birds can be gotten in sufficient numbers to start such a project. As the eggs and flesh of the Megapode are highly esteemed as food it should be a very important item to instruct natives not to poach eggs or birds unless they undertake to raise them for food in a semi-domestic condition. This matter of protection of the birds should be emphasized by strict taboos agreed upon by government officials, missionaries and tribal leaders.

It is my firm belief that nature has provided the Megapode as the bird that can put Achatina fulica in proper control, providing Uncle Sam is willing to give it a try by spending enough money to provide a large experimental farm with snail-fed bush hens and turning loose flocks of them into infected areas. I also believe that the New Guinea Cassowary or the South American ostrich, or rhea of the Gran Chaco would eradicate the snails on a large scale if raised for the purpose. They eat reptiles, frogs, fish snails, fruits, etc., indiscriminately.

Dr. Joseph Baeguart sent me his fine large illustrated monograph on the Achatinidae dealing with taxonomy and distribution but there is no mention of natural enemies of the destructive snail Achatina fulica. Many species of Achatine are eaten, especially in the French African colonies but it seems that very few people in the South Pacific will eat Achatina fulica. Dr. Kondo who has eaten them says they are insipid and of poor flavor.

A FORGOTTEN EPISODE IN THE HISTORY OF PALEONTOLOGY

By Joshua L. Baily, Jr.

In all the literature of paleontology, probably the most peculiar item is an obscure publication of such rarity that its name escapes me. It appeared in 1723 and came from the pen of an Austrian professor named Berliner. He was a student of fossils but we can hardly call him a paleontologist for that word had not yet been invented.

In his day, fossils were considered of importance not so much from the standpoint of zoology as from that of theology. They were believed to be the handiwork of the devil, who indulged in the pastime of their manufacture for the purpose of misleading and confusing honest naturalists. Professor Berliner used to dig in a fossil bed near the university at which he taught, and then display his findings at his classes, as specimens of the devil's expert craftsmanship. Times have changed much since those days as far as college professors are concerned, but as far as the students are concerned, times have changed a very little. The only thought that Professor Berliner's demonstrations seem to have evoked in his students' minds was the question, If the devil can make fossils why can't we?

Accordingly the students went to the fossil bed, obtained suitable specimens of sandstone, brought these into the laboratory, and proceeded to make from them graven images of everything in the heavens above, the earth beneath, and the waters under the earth. These they very carefully buried in the fossil bed, and a few days later Prof. Berliner would exhume them and bring them into the class room, to exhibit them as samples of the expert workmanship of the devil.

Most of these pseudo-fossils were imitations of spirally coiled gastropod shells, but by no means all of them. The most ambitious was a fossiliged spider, seated in the middle of its web, with a fly entangled in the marginal meshes. Encouraged by the success with which this effort was greeted, the students then began carving the lettersof the Hebrew alphabet on pieces of sandstone, and burying them in the fossil bed. The next week Prof. Berliner came to his class all excited. He had discovered proof the language of the devil was Hebrew. It had always been suspected that this was the case, but no one knew it for a certainty. But nowProf. Berliner knew it. Had he not discovered Hebrew petroglyphs in the devil's own workshop? A few weeks later he announced to his astonished class that he had employed the best available scientific artist to prepare illustrations of all the specimens taken, which he had publishedin book form and distributed in all the leading librariesof Europe.

The students then realized they had gone too far, but they were all afraid to tell the good professor what they had done. Finally they decided to carve Professor Berliner's own name on a piece of stone, conceal it among the fossils and await results. The latter were soon forthcoming. A day or so later, Prof. Berliner entered his class room very downcast and dejected. He was not on intimate terms with the devil, so he said; there was no reason why that gentleman should have chosen to honor him in this way; the petroglyph was undoubtedly a forgery, and if so, doubtless all the other findings were forgeries.

Whatever one may think of Prof. Berliner's intelligence, or of his credulity, one can not but admire the integrity which he then displayed in making public acknowledgment of his mistake, and in buying up and destroying as many of the books as he could.

He was not, however, able to recover all of them. Every copy which he destroyed augmented the value of the remaining copies as collector's items, and the collectors were able to outbid him. At the time of his death there were a few copies that had escaped destruction.

Prof. Berliner left a son who was naturally exasperated by the fabulous prices commanded by the work of his father, on which he could not cash in. He obtained the plates from which the original work was printed (it is not clear why Prof. Berliner had not destroyed these as well) and began to issue reprints from them. At first, these commanded fancy prices, too, but in time the market became satiated and finally the price that could be realized from their sale dropped so low that it was no longer profitable to issue the reprints. Then someone discovered that the reprints could be very easily distinguished from the originals. The originals all had serial numbers, which the reprints lacked.

The original issue is extremely rare and valuable book today. The Congressional Library does not have a copy. In fact, only one copy is known to exist in the United States. It is owned by a private collector who has very kindly allowed me to examine it.

As I looked over its beautifully executed illustrations, and observed the fine quality of its paper and its printing, the thought occurred to me that possibly when the paleographers of future centuries are lamenting the fact that the huge output of twentieth century publications are no longer legible, this strange work of Prof. Berliner may still be available to the students of eighteenth century culture.

Above article by - Joshua L. Baily, Jr.

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New Shell Book

A BEGINNER'S GUIDE TO SOUTH AFRICAN SHELLS by Dr. K.H. Barnard.

There has long been a need for a good field guide to South African shells. In addition to the text figures this book contains 22 full page black and white plates each illustrating about 12 species, 215 pages of text , and 4 full page color plates.

I have no hesitation in recommending this book to my friends. Of course, it does not describe all known species but if you have a shell not included among the several hundred covered here, you no doubt have a really good one.

Well bound in blue cloth. $4.25

John Q. Burch

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THE SNAIL HOSTS OF BILHARZIA IN AFRICA by Alan Mosley

This is another new book on the African fauna . Numerous species are well figured on the several plates, both those that are known hosts as well as those that are known not to be.

Well bound in cloth. $3.00

John Q. Burch

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THE IMPORTANCE OF AMATEUR NATURALISTS

by Andrew Sorensen

The term "amateur" denotes a nonprofessional. The term "amateur naturalist" stands for any person, young or old, who, for the love of it, gives much of his time and energy to the observation and study of nature, which he finds so abundantly around him. The field for his attention is so great, and the varieties he observes are so numerous that he soon confines his interest to the study of one of the subjects that most appeals to him. He has a wide range of choice. If he has keps his eyes open, he has seen life in many forms, from the smallest of insects to the largest of animals, from the lowliest of grasses to the grandest of towering trees. All are worth studying. Where he lives or where he can give his study the most attention must also influence his choosing.

The plains, the mountains, and the seashore, all have their own individual fauna. California, especially, has all these conditions, besides an equable climate which permits activity the year 'round. Is it any wonder then that here is where the amateur flourishes; where he is the most active; where he is the most numbrous; and where he is doing the most good in helping the over-worked professional? Such help consists chiefly in collecting and sending specimens to our great museums, universities, and academies of natural sciences for research. The experts there are few in number compared with the amateurs; consequently, they have little time to take field trips and get their own material. Many a specimen thus sent has proved to be new to science, a new species or perhaps a new genus. Even, if not new, the description of where it was found may prove an extension of range from previous records.

Due to California's one thousand mile coast line along the placid (?) Pacific Ocean and its close proximity to the Gulf of California in Mexico, with their wonderful molluscan fauna, we find that the majority of amateurs here are conchologists and they study both land and marine shells.

Our California marine conchologists should not be called "beachcombers." They are much more than that. True, they work the beaches at low tides and find many specimens that were washed up by winds and waves, but they also give much attention to the Inter Tidal Zone. Here is one of the places where the numerous amateurs can do much good. They can observe and describe the conditions under which many animals live. They can learn about the food, habits, the enemies, the methods of locomotion, the usual places of concealment, and much other valuable knowledge that is denied the scientists who, of necessity, must remain in his laboratory most of the time.

This is only one illustration. Much information and many fine specimens are gained by adventuresome persons who go out to sea with commercial fishing boats which scrape smooth sandy bottoms with dragnets; not only different kinds of fish are brought up, but also many kinds of mollusks, crabs, and starfish that live in deep water.

The old belief that Polinices draconus and Eunaticina oldroydi are shallow water dwellers is denied by commercial fishermen. Several tests have shown that they are seldom taken in less than twenty-five fathoms in Monterey Bay, but that they are found in increasing numbers out to eighty or ninety fathoms. On the other hand, the Polinice lewisii, the much larger "moon" shell, lives consistently in bays or other shallow waters.

The second World War brought a great increase in the number of nature students. Many of our soldiers and sailors from every state in the Union, who fought or were stationed on the islands all over the Pacific, found some time to notice the strange sights that confronted them in the Tropics. They began

collecting what most appealed to them and what they could most easily handle, and that proved to be the beautiful marine shells that abound on every beach and coral reef. Many a collection has been greatly augmented by what the boys brought back with them. However, all the credit should not be given to the men, for in numerous places the ladies are the most enthusiastic and most successful.

Conchologist clubs, Audubon societies and other nature study groups are widely scattered all over, but the ones in Southern California deserve especial mention. Here was organized the Pacific Division of the A. M. U. (The American Malacological Union). This organization holds meetings annually somewhere on the Pacific Coast; such meetings are attended by both professionals and amateurs.

A monthly publication in Los Angeles deserves credit and support for being devoted entirely to the interest of conchology. It contains valuable information from many parts of the world and is a great aid in maintaining interest in this branch of science.

Some amateurs are also doing a good job of studying land snails. One lady and her husband have thoroughly covered California from Mexico to Oregon; and one practicing physician spends all his vacations in Eastern Arizona traveling and climbing hills while collecting and studying the local land snails. He has been there so often and has become so well acquainted that he can address the snails by their first names.

Washington and Oregon have both added some outstanding persons to the amateur ranks. One Washington enthusiast deserves to be classed with the experts. He has traveled in various parts of the Southern Hemisphere and he has described the separate trips and the results obtained, all in the interest of Natural Science. Another has collected extensively in the Hawaiian Islands and further south.

To sum up the whole matter, we may call the amateurs the "buck privates" and the professionals the "officers" in this great army which is trying to uncover as many of Nature's secrets as possible. It goes without saying that neither could do its best without the other; so, therefore, it would be idle to make comparison of their relative importance.

They all work together. THEY ARE ONE.

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Illustrated Key to West North American Gastropod Genera by A. Myra Keen and John C. Pearson.

This new book was first seen at the recent meeting of the American Malacological Union Pacific Division, and was greeted by all as a genuine contribution.

It is a companion work to the Illustrated Key to Pelecypod Genera of which a new, enlarged and revised edition is also announced.

Both are available for $1.50 from John Q. Burch, 1584 W. Vernon Ave., Los Angeles 62.

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The Pearl Hunter, an autobiography by Leonard Rosenthal. This new book contains many personal anecdotes interspersed with much interesting information about pearls and their delicate handling. An excellent book for all interested in pearls. $3.00

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MANAGEMENT PROBLEMS OF A MOLLUSCAN SPORTFISHERY

by John E. Fitch

Prior to jumping directly into facts and figures on the Pismo clam let us inspect Mr. Webster's interpretation of a coupld of words. First manage - "to guide by careful or delicate treatment". Management we find is the "judicious use of means to accomplish an end". With this in mind we can now inspect the "end" which the Bureau of Marine Fisheries, California Department of Fish and Game, is attempting to accomplish. This is to formulate policies and recommend regulations which will be most suitable for a sustained fishery at the highest level possible. To accomplish this requires certain tools.

These tools which we use to achieve this goal are several and varied. They include closed seasons, closed areas, gear restrictions, licensing, minimum size limits, bag limits and a catch all which we shall label miscellaneous. The use of these tools is usually, but not always, determined by exhaustive research.

Closed seasons are used as a biological tool to prohibit harvesting of a particular species, usually during a definite period of time each year. The basic principles of this tool from a biological point of view are: protection of the clam from the public during spawning, setting or for some other reason, and protection of the public from the clam during periods when the clam may be extremely toxic. From a practical viewpoint closed seasons, if during summer bathing months in Southern California, simplify law enforcement.

Closed areas are used as a biological tool to build up clam populations within definite boundaries or to protect the public from harm due to pollution. Closed areas should never be permanently closed on public beaches but should be watched closely enough that when the situation which prompted closure no longer exists, the beach can again be opened for digging.

Gear restrictions have not yet become necessary with the Pismo clams; however, there is little doubt in my mind that if all the clam diggers in the State should suddenly go clamming with jeeps and plows, some immediate steps would be taken to make illegal any but certain specified types of gear for the capture of clams.

Licensing is one of the necessary evils to obtain revenue to pay for the research and law enforcement so necessary in maintaining a successful fishery. It also tends to limit the total number of clam diggers, to those who can afford to pay the necessary fee.

A minimum size limit is strictly a biological tool which allows a species to spawn at least once before going into a cooking pot. This theoretically assured a continued existence of the species.

Bag limits are one of the few things which always start at the top and work down. This reduction continues year after year until the point is eventually reached where it is cheaper and more nourishing to stay home and eat clams from a can than to drive to a nearby beach for the privilege of digging one or two. We sincerely hope we can keep this situation from the Pismo clam. An individual bag limit restricts one person to a definite number, an over-all bag limit would restrict a family group in a car to a definite number of clams per vehicle.

A miscellaneous category covers a host of regulations:
(1) Clams must be re-buried;
(2) Digging restricted to daylight hours only;
(3) Shipment of Pismo clams by common carrier prohibited;

(4) Clams can not be removed from shell until ready for consumption.

Management of the Pismo clam has been carried on in California since 1911 but not until 1917 was a program inaugurated for the scientific investigation of the commercially important fisheries of the State. In accordance with this program the services of Dr. Frank W. Weymouth were obtained in 1919 for the specific purpose of studying the Pismo clam. The results of his investigations were published in 1923 and that year, through his recommendation, an annual Pismo clam census at Pismo Beach came into being and, except for war years 1942 through 1946, has been carried on ever since.

From the data gathered during these censuses it has been possible to study (1) the effects of dominant year classes, (2) the effects of overclamming, (3) the effects of selective clamming, (4) the success or failure of incoming year classes and (5) mortality.

Constant pressure is brought to bear by various individuals, sportsmens groups and civic organizations to improve clamming. Suggestions, requests and demands processed in the course of a single year include such items as: law enforcement, better law enforcement, more law enforcement; no planting, more planting; no closures, more closures; reduced bag limits, increased bag limits, no bag limits; reduced size limits, increased size limits, no size limits; license minors; prohibit vehicular traffic on the beaches; and so on. Requests for more research are pleasant to receive but far more common are the demands by irate clam diggers to fire all the G.D. biologists. Many hours must be spent each year by different staff members just answering questions and statements along these lines; no inquiries are ignored.

A brief resume of regulations which have been in effect at different times since 1911 when the first size and bag limits were imposed are:

SIZE LIMITS from 13 inches circumference (about 4 7/8 inches diameter) to 12 inches circumference, to 4 3/4 inches diameter, to 5 inches diameter. Present plans call for a reduction of the size limit to 4 inches diameter in the near future. This is to allow a harvest of some 90 percent more clams than it is possible to take with the present 5 inch limit. Bag limits from 200 to 50 to 36 to 15 to 10.

Closed seasons and closed areas are also to be found throughout the regulations at varying intervals.

There is no doubt that the finer points of the entire program could be discussed for many hours, but this is neither the time nor the place for such a discussion. It is hoped that this present paper has given all of you a somewhat clearer understanding of the problems attendant with the management of a molluscan sport fishery.

PTEROPODS COLLECTED BY THE ALLAN HANCOCK FOUNDATION

by A. D. Howard

The Pteropods as a group do not seem to have received much attention from malacologists of the Pacific Coast. They are small and inconspicuous and so do not attract the conchologists in general. My work on them was due to the suggestion of Dr. McCulloch that I take them to work up. This led me to pay attention to the few examples in the collections and to save them out of the bottom samples and residual dredgings. I thought the members of the A. M. U. would be interested to see what we have found. The Pteropods are characterized by the possession of two fins extensions of the foot with which they move about actively in the open ocean and have been given the name of sea butterflies. They form a part of the oceanic Plankton and thus are pelagic. But they are light sensitive and so do not come to the surface except at night. To obtain them one must use a two net and in daylight they are found at various depths. The lowest we have taken them is at 300 fathoms or nearly 2000 feet down. They occur in swarms and become the food of fish and whales which in the polar seas devour millions of them. This leads us to one of the methods of collecting them; that is the examination of the stomach contents of fishes. Mr. Carlisle of the California Department of Fish and Game showed us examples of these pteropods of which he found 114 in the stomach of a horse-mackerel.

All together we have three ways of collecting them, (1) by tow net, getting them alive, (2) in the stomach of fishes at various stages in digestion, and (3) by dredging and bottom sampling we find them in deposits on the ocean floor. We can learn to some extent the distribution by these "deposit" shells. Some species are world wide in their distribution while others are more limited as polar or tropical seas species. Being pelagic they are naturally carried around by currents.

The distribution in time is from Cambrian to Recent. Their early occurrence in the time scale leads some paleontologists to the belief that they are an independent group that is not derived from the Opisthobranch Gastropods. There has been considerable controversy over this point. As they are pelagic the conditions controlling their life have been the same from the beginning, not subject to the changes that have operated on many animals.

The Pteropod have been placed by most workers as an order under Gastropoda. This order is divided into Thecasomata or shell bearing and Gymnosomata without shells. Our experience has dealt chiefly with the Thecasomata as it is with the shells that we are concerned mostly. There are a number of families and genera under each group.

I will show a drawing of one of the cavolinas, the rather common species Cavolina tridentata Lessuer which will give an idea of the internal anatomy of all the Thecasomata although the shell varies a great deal. The Thecasomata feed on algae and protozoa while the Gymnosomata eat animals and other swimming plankton. The names I shall use are based on the classification of Dr. Tesch of Schulze's Animal Kingdom. This seemed to be the simplest way to proceed as the nomenclature of this group is inextricably involved. There are almost as many names as there are workers but Tesch gives the synonyms very carefully so that the identity of species can be determined. He depicts the species with names following the rules of nomenclature. The variations from the species he considers as varieties.

I have not attempted to determine the varietal names for all forms found. The simpler Pteropods the Limacinidae have coiled shells like a snail but sinistral and with wide flaring orifice. Limacina helicina- we have collected these

with tow net alive. They have reddish bodies entirely withdrawn in the shell when in preserving fluid. We have collected them in the San Pedro Channel at 150 fathoms and 300 fms. Those collected from the stomach of the Horse mackerel were taken off the coast of Lower California at latitude 31°.

Limacina inflata - The second species of this genus is Limacina inflata taken in bottom samples in the Galapagos Islands, Cocos Islands, Panama and thru the canal on the north coast of South America at Aruba Is. and Trinidad. They are very small, about 1 I/2 mm. in diameter and have a distinctive appearance, an extending point to the shell beyond the spiral. The next we come to is Creseis of the family Cavolinidae.

Creseis acicula Rang a long needle like form.
5 collections along the coast of So. America
5 collections from Galapagos Islands

Creseus virgula- Rang
Not as narrow as acicula and curved
Synonym Cleodora falcata by Gould
The specimens were taken at Carmen Island in the Gulf of Calif., Cocos Island Panama and Hood Island, Galapagos

Clio, a genus named by Linnaeus is triangular in form, shell transparent.
C. pyramidata pyramidata is a common form all along the coast from Santa Rosa to Panama, Coast of South America and Galapagos Islands but not in the Gulf of California.
C. pyramidata lanceolata we have taken by townet in the San Pedro Channel and in deposits.
Diacria - This group is marked by a thickening of the edge of both dorsal and ventral shells
Diacria trispinosa (Lessueur) has conspicuous side spines and a long posterior projection. We have it only from Cortes Bank.

Diacria quadridentata (Lessueur M.S) was the most abundant species of our collections being found from the Gulf of California, Central America, Panama, coast of South America and Galapagos Islands. We think we have a new variety from the Ladrones and Cocos Island. Marked by its small size; its lineal diameter is 1/4 that of the common variety, and its color is much paler. I have designated it by the varietal term of D. quadridentata parva.

The genus Cavolina shell is most strongly arched, especially on the ventral side. In Cavolina longirostris (Lessueur) we have an extension of the dorsal shell to the front and an extension of the ventral shell on both sides giving the form of an isosceles triangle. We find its distribution from the Gulf of California along the coast south to Panama and extending along the coast of South America to Peru. In the Galapagos Islands and Cocos Is. we have a variety which is similar to the strangulata of New Zealand waters. I have called it Cavolina longirostis constricta as it is not just the same as "strangulata".

Cavolina tridentata (Farskäl) syn. cavolina Telemes tricuspida Rivers is a local species which is characterized by a broad extension of the dorsal shell beyohd the ventral. We have taken it at Santa Cruz, San Nicholas, Catalina, Cortes Bank and San Benito Islands. Then again at the Galapagos Islands.

Cavolina Uncinata (Rang) collected as far north as Colet Bay and San Benito Is. then south to Gulf of California and vicinity, Panama, down the South American coast and Galapagos. Cavolina inflexa (Lesseuer) the last of the Cavolinas we have collected is a local species. The variety Longa seems to be the local form. We have taken it living by towing in the San Pedro Channel at 315 fathoms.

We have found it in deposits on the Cortes Bank. Willet collected them at 30 fms. off Catalina calling them *Cavolina laevigeta Obigny*.

The only representative of the *Gymnosomata* that we have taken is as we have identified it, *Pneumodermopis paucidens (Boas)*. It was in the net with the other plankton at 300 ft. depth. Length 4 mm. Diameter 1 1/2 mm.

SHOWN BY LANTERN

Classification

Pteropoda

Thecosomata
  Limacinidae (Cuvier) Lamarck
    1. Limacina helicina (Phipps)   Alive
    2. Limacina inflata (Orbigny)   Shell
  Cavoliniidae
    3. Creseis acicula (Rang)   Shell
    4. Creseis virgula (Rang)   Shell
    5. Clio pyramidata pyramidata (Linnaeus)   Alive and shell
    6. Clio pyramidata lanceolata (Lesueur)   Alive
    7. Diacria trispinosa (Lesueur)   Shell
    8. Diacria quadridentata (Lesueur M.S.)   Shell
    9. Diacria quadridentata parva   Shell
    10. Cavolina longirostris (Lesueur)   Shell
    11. Cavolina longirostris constricto (Howard)   Shell
    12. Cavolina tridentata (Forskäl)   Shell
    13. Cavolina uncinata (Rang)   Shell
    14. Cavolina inflexa (Lesueur)   Alive and shell
15.
Gymnasomata - Pneumodermopsis paucidens (Boas)   Alive

Contribution from Allan Hancock Foundation of the Univ. of Southern California.

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REVIEW

"CHECK LIST AND BIBLIOGRAPHY OF THE RECENT MARINE MOLLUSCA OF JAPAN" by Tokubei Kuroda and Tadashige Habe. 210 pp., 1 chart; lithoprint. April 4, 1952 $4.00

This ingeniously arranged list covers 4,395 species of marine mollusks - 1,048 pelecypods, 3,313 gastropods, and 34 scaphopods. These are indexed systematically, alphabetically by genus, and alphabetically by species. Synonyms and nomenclatural changes of recent years are indicated, names being listed under both current and previous assignments. Geographic range in terms of latitude and province for each valid species is given. A bibliography of about 1,700 numbered titles enables the reader to trace the original reference for each species. In addition, there are some pertinent notes on the distribution of Japanese marine mollusks and on the physical characteristics of the waters surrounding Japan, with a map and bathymetric chart of the area. The careful work of both authors and the long experience of the senior author make this a "must" for the library of anyone interested either in systematics or in Japanese Mollusca. It is the key to a voluminous and scattered literature besides being a compact list of accepted names for Western Pacific shells, for the list actually covers a wider area than Japan alone. Rigorous editing has kept the inevitable typographical errors to a minimum. Several new generic and specific names are proposed.

The officers elected by the A.M.U.P.D. for the coming year are:

Mr. Allyn G. Smith, Chairman California Academy of Sciences
Mrs. Elsie M. Chace, Vice Chairman 24205 Eshelman Ave.,Lomita,Calif.
Mr. Ralph O. Fox, Secretary Treasurer 1048 Monterey Ave.,Berkeley 7

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Minutes of the Conchological Club of Southern California-
Meeting held June 3,1952

Called to Order: The meeting was called to order at 7:30 P.M. by the President, Dr. Arthur D. Howard

Report of Committees:

Dr. Howard Hill gave a report from the last Nautilus. Mr. E.P. Chace reported that the new publication, Key to West Coast Gastropod Genera by Dr. A. Myra Keen and John C. Pearson will be out this month. Mr. Morris Schick's exhibit " Gems of the Sea" at the annual Gem Show by the Glendale Lapidary and Gem Society at the Glendale Civic Auditorium on May 17 and 18, was such a center of interest that the Los Angeles Times took a picture of Mr. Schick and some of his shells. The paper gave Mr. Schick a nice writeup under the title " Rare Sea Shells Becoming Scarcer, Says Collector". A copy of this article will be added to the collection in our cabinet. Those of us who saw the Fifth Annual Gem Show felt that Mr. Schick indeed had a nice collection.

Field:- In the absence of Mr. L.C. Bessom, Mr. John Q. Burch reported that all low tides are now at night.

New Members:- We were happy to have two new members join the club. Mr. Joel R.M. Albee, 1112 Neola Street, Los Angeles 41,Calif. and Mr. Frank Benak, 4555 Browne Street, Los Angeles 32, Calif.

Special Committee: Mrs. John Q. Burch not only reported that the cabinet is finished but showed it to us with a complete set of the Minutes, a few books, scrap books and other articles belonging to the club. We wish to thank Mrs. John Burch for her work and interest in collecting this material for the cabinet. The club gave a big thank you and hearty hand clap to Mr. George Kanakoff and Mr. L.C. Bessom for making the cabinet. Their gift is greatly appreciated by the club members. It was voted that the secretary purchase a lock with two keys for the cabinet.

New Business: Mrs. John Q. Burch suggested a committee be appointed to welcome the American Malacological Union Pacific Division meeting. Dr. W.O. Gregg, chairman of the A.M.U.P.D. informed us that the Conchological Club of Southern California is acting as host to the A.M.U.P.D. but suggested that a hospitality committee be appointed. Mrs. E.P. Chace was appointed chairman. Dr. W.O. Gregg appointed a reception committee, Miss B. Falconer,chairman, Mrs. A.D. Howard and Mrs. Howard R. Hill.

Miss Ruth Coats, program chairman of the A.M.U.P.D. gave a short preview of the program. Mrs. E.P. Chace received a letter from Mrs. Margaret Teskey saying she would send the official scrap book of the A.M.U. and asked that everyone sign it. Also to add any pictures that would be of interest. Mrs. John Q. Burch contacted the Los Angeles Chamber of Commerce and they are going to furnish badges for those attending the AMUPD meeting. (Thank you, Mrs. Burch).

Program:- As there was no further report , the president Dr. A.D. Howard turned the meeting over to Miss Ruth Coats, the program chairman. Miss Coats asked the members to gather around the tables where a lively discussion took place. The subject "Problem

Shells", aroused a lot of interest. Everyone felt that they had spent a very profitable time together. Dr. Howard R. Hill suggested that the club bring their specimens of Murex to compare the different points in the species of *rhyssa* Dall, *petri* Dall, *trialatus* Sby., *carpenteri* Dall, and *tremperi* Hemphill.

Before the meeting adjourned at 9:20 P.M. Dr. H. Hill announced that on June 10 to 15 at the L.A. Museum on the main floor there is to be had a very fine marine aquarium exhibit. It will be open two evenings, Friday and Saturday, June 13 and 14.

Bessie Falconer, Secretary
236½ Bailey St.,
Los Angeles 33, Calif.

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Additions to the West Coast Molluscan Fauna

Professor Trevor Kincaid who has been actively engaged with the oyster fisheries of the state of Washington since his retirement from the University of Washington, sent specimens of two new species from Willapa Bay, Washington. These are obviously immig--rants from Japan and intriduced with the oyster spat.

I classified them as *Rapana thomasiana* Crosse and *Anomia lischkei* Dautzenberg et Fischer. Other than the obvious competition for available food the *Anomia* should not prove to be a great pest, but the large *Rapana* is carniverous and if it becomes thoroughly established might become a serious menace to the oyster industry.

John Q. Burch

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Letter from Walter J. Eyerdam, Washington Bay, Kuiu Id., S.E. Alaska, June 10,1952. " Arrived in Washington Bay this afternoon with most of last year's crew.

Just before leaving Seattle this morning I went through my rather extensive collection of Ampullaridae to see whether I had a species comparing with Allyn Smith's meagre description of the exotic snail that he found in abundance in a lake in Central Park, Washington, D.C. The only species size of a golf ball and with three brown bands that I have is *Pomacia glauca* from Kartabo, British Guiana and is found in several races in the Oronoco system.

Several years before World War II there was a man in Germany that imported many species of the more showy species of freshwater snails native to N.E. South America, and successfully raised them in aquaria. I received several live species but they didn't live long. Some of his snails were Pomacea. It is quite possible that attempts at raising such snails around Washington, D.C. has been made , as conditions at least in summer are suitable. I doubt whether Ampullariidae or Vivipariidae ever become pests."

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Linatella poulsoni Morch in Florida

An adult and unusually large specimen of this shell was recently taken alive in Lake Worth by Mr. George Irvin Jr. of West Palm Beach. This is an exceedingly rare shell even in the West Indies and has never previously been taken in Florida waters.

A. Hyatt Verrill

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Pearl Fisheries Bill 1952- Australia. A very long but interesting account of the legislation covering sedentary fisheries appears in the April issue of the Fisheries Newsletter. New are more stringent laws are being passed to protect the fisheries on " the continental shelf". The principal items to be protected are mother of pearl, trochus, beche-de-mere and green snail.

We have a very interesting letter and clipping from Dr. J.L. Baughman, Chief Marine Biologist, Game, Fish and Oyster Commission. Rockport, Texas. " I thought the enclosed might be of interest. We got it along with two *Pecten glyptus* and a couple of *Sconsia striata* in 100 fathoms and, as soon as we get the clutch fixed, are going back to look for some more."

The Clipping is from the Caller-Times News Service and is titled " World's Rarest Snail Shell Found Near Port Aransas"

A picture of the shell is shown and below it " Rockport's *Scaphella kieneri* ... in plain language , a very rare snail"

Rockport- The known collection of the world's rarest sea snail was doubled this week when Dr. W.J. Clench of Harvard University identified a shell taken by biologists of the Marine Laboratory as a *Scaphella kieneri.*

The only other shell of this species known to exist is in a museum at Geneva,Switzerland. The museum shell was collected by French fishermen in the Lesser Antilles in 1829.

The *kieneri* was collected by E.D. McRae while making exploratory shrimp trawls in 150 fathom water off Port Aransas. It was submitted to Clench, the world's leading conchologist, for identification.

The shell is cone shaped, approximately three inches in length. It is of a deep cream color with bronze lozenge-shaped spots a arranged apirally around its length.

Jack Baughman, chief marine niologist for the Texas Game and Fish Commission, said Clench is returning the shell to the laboratory here where it willb be placed on display..

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New Publications Received

Exploration Hydrobiologique du Lac Tanganika (1946-47)- Institut Royal Des Sciences Naturelles De Belgique- Vol. III, Fascicule 1 Lamellibranches par Eugene Leloup. Bruxelles 1950

Large folio 153 pp of text,8 plates and 61 text ill.

Revue Suisse De Zoologie- Annales de la Societe Zoologique Suisse- Les Types de la collection Lamarck au Museum de Geneve by G. Mermod. Gebene Mars 1952

This is part III of this series of valuable reports. 75 pages and 60 illustrations.

Genera of Japanese Shells - Pelecypoda No.3 by Tadashige Habe 94 pages, text figures . This work consists of a check list giving the genera, type species, list of species recognized with synonymy. It is a very useful work.

The Nautilus, April 1952- A number of papers of interest to this coast are included. The papers are as follows:

Some Interesting localities on a collecting trip to Mexico by Morris K. Jaconson; Shells collected by the Peabody Museum Expedition to the Near EastI Mollusks from the Persian Gulf and II Land and freshwater shells by F. Haas; Some marine shells used by prehistoric Indians in Ecuador by Robert J. Drake; Some molluscan trails in Prince William County, Virginia by Frank L. Jeffries; Some mollusks from Door Co.,Wisconsin by Alan Solem;The stratigraphic composition of a woodland population by Philip H. Krutch; Introduced species of land snails in New Jersey by Robert C. Alexander; Studies in mollusk popu;ations by R. Stohler; The generic name Pseudotrochus by H.A. Pilsbry; Infra-subspecific terminology in marine mollusks by William K. Emerson; A.M. Strong by Elsie M. Chace.

In the Notes and News there is an article by Dr. Joshua L.Baily Jr " Another California Neritina"-- *Neritina luteofasciata* Miller. The locality given on this shell is " a sand beach bounded by rocks below tide level".

I think that Dr. Baily is of the same opinion most of us must have. In the first place the habitat is not suitable for a *Neritina* and in the second place La Jolla has been a favorite collecting spot for literally thousands of enthusiastic collectors for many years and none of them reported anything like it. Mixed labels have contributed more than their share of additions to faunas.

Mr. William K. Emerson's paper " Infra-Subspecific Terminology in Marine Mollusks" should be carefully read. It is unfortunate that we are now burdened with countless subspecific names of no more validity than would be the naming of each kitten in a litter of the domestic house cat.

Basteria- Vol. 16, No.1 en 2, p 1-32, 15-IV-1952. This is the organ of the Malalcological Society of the Netherlands.

It is interesting that 4 out of the 5 papers in this issue are in English. The papers are- Bernard Verdcourt: Notes on Kenya land and freshwater snails, 1-3; E. Darteville: Helix (Cryptomphalus) aspersa O.F. Muller- Conditions de vie etranges; A.C. van Bruggen; Notes on South African Mollusca ,1,2; W.S.S. van Bentham Jutting: A Snail Farm in the Netherlands; T. Pain: Notes on the Pomacea of Surinam, with special reference to Ampullaria sowerbyi Vernhout.

Also received is the Correspondentieblad Van De Nederlandse Malacologische Vereniging. This is the large legal size mimeographed reports of the above organization. A large number of really valuable collecting records and other information appear in this work.

Circulares del Museo y Biblioteca de Malacologia de la Habana- pp 528-545. In this issue the concluding part of the following appears:- Bibliografia Sóbre El Genero Liguus por Miguel L. Jaume. This bibliography of the genus Liguus should be of genuine value. The notes of worldwide interest in the group are also always very complete. Editor: M.L. Jaume, 13 No. 351, Vedado, Habana,Cuba $1.50 for 100 pages.

The following papers from Bernard Verdcourt are of interest and value; The Development of the Radula of the Roman Snail (Helix pomatia L.) Reprinted from the Microscope; and A new species of Trichotoxon from Kenya (Mollusca,Urocyclidae). Rev. Zool. Bot. Afr. The last is, of course, a description of a new African slug.

Auckland Museum Conchology Club Bulletin No.7, Nov.,1951. Our New Zealand cousins who followed us for a number of years by mimeographing their papers have finally forged ahead and this issue is a neatly printed journal. We congratulate them and confess to a degree of envy. Among the papers in this issue are: Notoplax cuneata by Wm. P. Thomson;Hunting Paryphanta rotella patrickensis by A.C. O'Connor; Collecting Cassididae in the Leigh District by T.P. Warren; Collecting at the Bay of Islands by Robert L. Mathews; Two Storms in Mercury Bay by Dorothea D. Stocker; Collecting Placostylus in Winter by B.S. Bird; Minute Gems from Seaweeds Under Stones and Shell Sand by A.K. Hipkins; New Zealand Molluscan Literature by Elwyn Richardson.

MINUTES 122
SEPTEMBER 1952

CONCHOLOGICAL CLUB OF SOUTHERN CALIFORNIA

Subscription $2,50 per year

We are now meeting the first Tuesday of every month at 7:30 P.M. at the Los Angeles Museum, Exposition Park, Los Angeles, California. All interested persons are cordially invited.

Please mail all news to your editor- John Q. Burch,
1584 W. Vernon Ave.,
Los Angeles 62, Calif.
Telephone Ax 3-5710
Home Ax 2-7965

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DEMONSTRATION OF SHELL MODELS By Helmut Meier

Much has been accomplished in the field of classifying shells, also the scientific study of the animal itself, but very little has been done to get the public and also some of the enthused shell collectors acquainted with the originator or creator of these beautiful shells which are displayed in many show cases- I was one of them.

Whenever I had friends or children ask me-"What does the animal look like", it was impossible to give them a satisfactory answer, because first of all the mollusk which inhabits the shell is a most sensitive and shy creature; secondly, after the shells are collected the next thing is to boil and discard the animal as quickly as possible. For this reason I made it a must for me to study the animal by keeping it alive as long as possible, so as to make extensive sketches and colored drawings. From these drawings I modeled the animal and attached it to it's original shell and mounted it on a rock. Then painted the model as accurately as possible from my observations. I believe someday it will be help-ful in schools and museums for educational purposes and it certainly will be easier to explain what the animal looks like which builds such beautiful shells.

*** Note*** All familiar with them are amazed at the lifelike plastic models made by Mr. Meier. J.Q.B.

MINUTES OF THE CONCHOLOGICAL CLUB OF SOUTHERN
CALIFORNIA, HELD JULY 1, 1952, at 7:30 P.M.
AT THE LOS ANGELES MUSEUM, EXPOSITION PARK,
LOS ANGELES, CALIFORNIA

CALLED TO ORDER: The President, Dr. Arthur Howard, called the meeting to order at 7:40 P.M. Seventeen members were present; four guests were introduced and welcomed. It was voted to dispense with the reading of the Minutes of June 3rd.

REPORT OF COMMITTEES:
FIELD: Mr. George Kanakoff reported that Mr. L. Bessom, the Field Trip Chairman, is on a diving trip to Mexico.
NOMENCLATURE: Dr. H. Hill reported that Glen Webb describes a new variety: Haplatrema concavum, found in the Smoky Mountains. Mr. John Q. Burch brought to our attention several new publications. Also showed the Illustrated Key of West North American Gastropod Genera, by Dr. A. Myra Keen and John Pearson

MEMBERSHIP: We were happy to have Mickey McGanghey, 5667 Baltimore Street, Los Angeles 42, join the Club.
PROGRAM: In the absence of Miss Ruth Coats, Mrs. John Burch reported that Miss Coats' wishes the Round Table Discussions to continue.
EDUCATIONAL: Dr. W. O. Gregg, Chairman, no report.

SPECIAL COMMITTEE: Mrs. John Burch reported that all the material belonging to the Club is now in the cabinet. This includes a complete set of the Minutes from 1916. We wish to thank Mrs. Burch for her fine work in collecting this material for the cabinet. It wasmoved that the Secretary act as librarian for the remainder of this year. Also that the Club get as near as possible a complete collection of California shells which will be kept in the cabinet.

PROGRAM: Round table discussion: Muricidae, the winged forms of the West Coast. Dr. H. Hill opened the discussion. He was disposed to believe that Murex petri, rhyssa and carpenteri are all the same species, but Mr. Emory Chace, John Burch and others disagreed with this. The question of the correct name for the various groups of Murex though seemed to be a problem that aroused a multitude of varying opinions. A complete report of the discussions would be too extensive a matter for record here. It is suggested to continue discussion of other groups of the Muricidae family at the August meeting.

Mr. Gilbert Grau showed some very interesting shells from South Africa. Mrs. Eleanor Korver brought her very interesting and colorful scrap book. The drawings were made with color pencils.

Meeting adjourned at 9:15 P.M.

Signed: Bessie Falconer, Secretary
236 1/2 Bailey St.
Los Angeles 33, California

1952 A.M.U.P.D. PICTURE

Row 1: R.G.Beck, Ralph Fox, Ruth Coats, Elsie Chace, W. O. Gregg, Allan Smith, Ora Willett, Miss Harriet Thomson, Mrs. Hall Meier
Row 2: Mrs. R.G.Beck, John Q. Burch, Roy Morrison, A. D. Howard, Al Mead, S.S.Berry, Emery Chace, Hazel Whelchel, Mrs. E. Coats
Row 3: Joel Allbee, Martin McGaughey, Wm. Emery, Ernest Wilcox, John Fitch, Miss Agnes Shumate, Ruth Whitney, Mary Turver, Hall Meier, Myrtle Sprague
Row 4: Arthur Price, Mrs. Matzen, Ruth Eaton, Mert Henshaw, Ralph Bormann, Mary Bormann, Howard Fletcher, Mrs. Fletcher, A. Myra Keen, Andy Sorensen, Harry Turver

AN ECOLOGICAL STUDY OF MOLLUSCS FOUND AT MISSION BAY, SAN DIEGO, CALIFORNIA

by Roy L. Morrison, San Diego, Calif.

PP. 3-7

Condensed from a paper given at the Fifty Annual Meeting of the Pacifid Division of the American Malocological union, Founders Hall, University of Southern California, Los Angeles, Calif. June 20-21-22,1952, by Roy L. Morrision, San Diego

INTRODUCTION:
Mission Bay is so situated as to afford special advantages to the investigator of Molluscs. The mildness of the climate makes the study not only possible but pleasant at all times of the year. Mission Bay with its extensive shore-line, its sloughs, mud flats, sandy beaches, low cliffs, rocky ridges, and the mouth of the San Diego river provides a great variety of collecting grounds within a limited area.

HISTORICAL DATA: Shell collecting began here at an early date. Records show Lamarck visited this region in 1799, some 163 years ago, collecting from Point Barrows, Alaska, south to the Coronado Islands; Sowerby visited here in 1883; Gray in 1847; Carpenter in 1872; and Dr. Wm. Dall visited here under the auspices of the Smithsonian Institute in 1866. Mr. C.R.Orcutt was here in 1885; Josiah Keep from 1886 to 1890, and Dr. Hemphill in 1905; Dr. Fred Baker, Mr. Fred Kelsey and many others.

INTENSIVE STUDY OF MISSION BAY: A systematic study of the immediate region of San Diego areas has, so far as I have been able to learn, been made by only a few persons; namely, Mr. C. R. Orcutt, Dr. Fred Baker, Mr. Fred Kelsey, Dr. Myrtle Johnson and myself. Mr. Orcutt made his survey in 1885, 67 years ago. In a list published in the U. S. National Mist. Museum Proceedings, Mr. Orcutt lists 249 species of Molluscs found in the vicinity of San Diego. Of this number 102 were found in Mission Bay. Dr. Myrtle Johnson published her book, "Sea Shore Animals of the Pacific Coast" in 1927, and much of her work was done in the Mission Bay Area.

In this study four areas were established for the sake of convenience in handling the great amount of datagathered from the extensive shore line; also to add in the interpretation of the problem. Forty eight habitat stations were established by reason of the fact that each habitat station represented a particular type of shore bottom for that particular place in the bay.

DISCUSSION: The purpose of this study was first to secure definite knowledge of the distribution of the molluscs and of the factors that control distribution: Second, to learn the identity of each shell and to classify them. The first is a study in Ecology, requiring the analysis of the environmental conditions; namely, behavior and habitat. The second,purpose wasone in Taxonomy only.

In the discussion of the material collected during the survey, two definite lines were followed: the first, dealing with the factors which govern distribution. The second, dealing with the type of Molluscs which may be divided ecologically into four groups; the sedentary or fixed group; the free motile group; the actively burrowing groupl and the relatively permanent burrowers.

BIOLOGICAL ENVIRONMENT: Environmental conditions affect the molluscan life both physically and biologically. Many species are either sedentary or limited to a definite area; this makes it necessary that food be brought to them, as their existence depends upon a constant and unfailing food supply. Correspondingly the greatest amount of molluscan life is found where there is the greatest amount of food. Unnatural causes destroy the organisms that provide the necessary food for the marine fauna, but few disturbances of this kind, namely commercial industries have affected the water of Mission Bay. The greatest disturbance to the

molluscs found here has been the flood waters of the San Diego River which flows into Mission Bay. Migratory species are able to move to new feeding grounds when the food supply has once become exhausted and thus survive.

FACTORS GOVERNING DISTRIBUTION OF SPECIES: General Distribution: The factors that govern molluscan fauna are many, but regions the size of Mission Bay would not be subject to all of them. Such factors as the character of the shore bottom; influence of the seasons; influence of depth; influence of molar agencies, such as Waves, tides, and stagnation.

In marine habitats the character of the bottom is determined largely by the movements of the water. Rocks are characteristic of wave beaten shore. Sand is found in turbulent bays. The entrance to the bay and the inner harbor are sand habitats, the result of the inrushing of the tides and the waves from the ocean. Here the strength of the tide is the greatest and most turbulent.

Rocks and sand are not generally so productive of animal life as mud, but some rocky bottoms have an abundant fauna. Mud and ooze typify quiet waters, but mud bottoms usually have the advantage of an abundance of food, both from mineral sediment and from organic remains of plants and animals. Mud bottoms have however, the disadvantage of poor areation.

Nine types of habitat were found in Mission Bay and upon each may be found Molluscs characteristic of that shore bottom.

INFLUENCE OF SEASONS: The temperature of seasons affects the distribution of Molluscs and their power of resistance is limited by the sudden and extreme changes of temperature. Cold or warm temperatures not very extreme but continuous for a longer period than usual produces results of similar character. Clouds and winds are among the most important factors that modify temperatures.

INFLUENCE OF DEPTH: The influence of depth on molluscan distribution varies as to the physical conditions of the immediate surroundings. When pressure, temperature, and light, play an important part, the problem is quite different from the protected bays and sloughs were brackish water is found. The physical factors of shallow brackish water environments are closely associated with tides. Surfact materials are moved, organisms are fed daily, and seasonal temperatures are changed. The topography of the bay is greatly affected by tides. Depth plays an important part in the distribution of molluscan life, since the action of the waves upon the molluscs is more or less regulated by the depth of the water. Animals living on the sand and other unstable deposits depend entirely upon their ability to penetrate the sand.

INFLUENCE OF MOLAR AGENCIES: WINDS: The ecological effect of winds is apparent in many habitats as winds raise the temperatures when they blow from warm regions and lower them when they come from cooler ones. Migrations are helped or hindered by winds. Winds often limit the local distribution of animals, particularly in exposed places. Winds benefit certain habitats by removing certain gases and by disseminating the minerals.

CURRENTS: Currents in water are due largely to winds, and differences in pressure are due to variation in level areas. Currents serve to distribute, select and annihlate myriads of animals. The growth of individual animals and great aggregations, like the oyster beds and coral reefs are often dependent upon currents. Mission Bay having only a small inlet from the ocean is affected very little by the ocean's current.

WAVES: The adaptation of animals to waves and to strong currents is similar; many animals that live in moving water are sedentary or fixed; Some animals have flattened bodies or have developed organs for adhesion, such as suckers or clinging hooks and mucus or cement glands; others have a strong shell that covers the body.

TIDES: The ocean tide causes arhythmical succession of currents in littoral habitats; many animals adjust themselves to this system, such as the Limpets and the Littorina.

STAGNATION: Stagnation is associated with adaptions in organs of respiration, and aquatic animals that live in quiet water have means for acquiring oxygen from the atmosphere. Mud can be deposited only where there is more or less stagnation.

TYPE OF MOLLUSCS ECOLOGICALLY DIVIDED: Gastropoda: Sedentary or fixed: Gastropods that are sedentary or fixed are often found attached to each other and to other shells and to rocks and piles but are not always anchored to permanent objects.

FREE MOTILE: The free motile are abundant upon the upper mud flats, shallow shore bottoms and the sandy eel grass covered, mud flats. The Cerithidae is a characteristic type of the free-moving gastropod of the brackish water area being semi-terrestial as well as marine animals in their habitats. Animals of fixed or sedentary natures are particularly absent from the mud flats and sandy beaches.

PELECYPODA - Sedentary or fixed - Some Pelecypoda that are sedentary, when young are free swimming, but become fixed when adults. T here is a tendency under crowded shore conditions for many animals to lodge on the bodies of other animals, in exactly the same manner as they would on any inorganic substratum or rock or poling. This may become a serious menace for the species providing the foot-hold, as its movements are impeded and its growth stifled. For instance, mussel beds are subject to over crowding; here the older forms are gradually suffocated beneath an ever growing mass of younger individuals.

FREE MOTILE: The free motile Pelecypoda, such as the Pectens, never burrow; they are free moving and are found on the sandy mud covered flats and in the eel grass at low tides.

ACTIVELY BURROWING: The CHIONES, PHAPHIAS, COOPERELLA SUBDIAPHANA, LYONSIA AND CARDIUMS, burrow only sufficiently enough to hide from their enimies; they inhabit the upper mud flat areas where sand is present. Sanguinolaria nuttallii is, however adeeper borrower in comparison with other Plecypoda just mentioned. Macoma nasuta and Mactra flourish among the roots of the eel grass. Thracia curta, Psamnommia califronicus, Semele dehisa and Cythadontia dubiosa are relatively permanent burrowers, as are the Razor clamms. Modiolus capax and Modiolius rectus, while not deep, are relatively permanent and are found in the sandy mud; while some large colonies of modiolus capax inhabit old rocky clam beds and seem to flourish there, along with Semeles, Schizothaerus nuttallii, Saxidomus nuttallii.

The really deep burrowing Pelecypoda are the Zirfaea gabbi, the Solenance and Panope generosa. The Piddock are permanent burrowers. Animals that live on the shifting sands bottoms are usually good burrowers or swimmers.

CONCLUSION: It is difficult to predict what effect the changes in the old shorelike of Mission Bay will have on the Molluscan life of the future. It is fairly

safe to say that not all of the marine life will be destroyed, many forms will adapt themselves to their new environment, others will no doubt migrate and some no doubt cease to exist.

This paper is the result of twelve months' study. The information was secured by regular and frequent visits. The data is based upon observation and material collected along the shore during low tides. A total of one hundred fifty-three living species were taken from the bay during the survey. Of these, 67 were bivalves and 86 univalves, representing sixty seven families. Some twelve or fifteen additional species have been collected from the bay since this study was made.

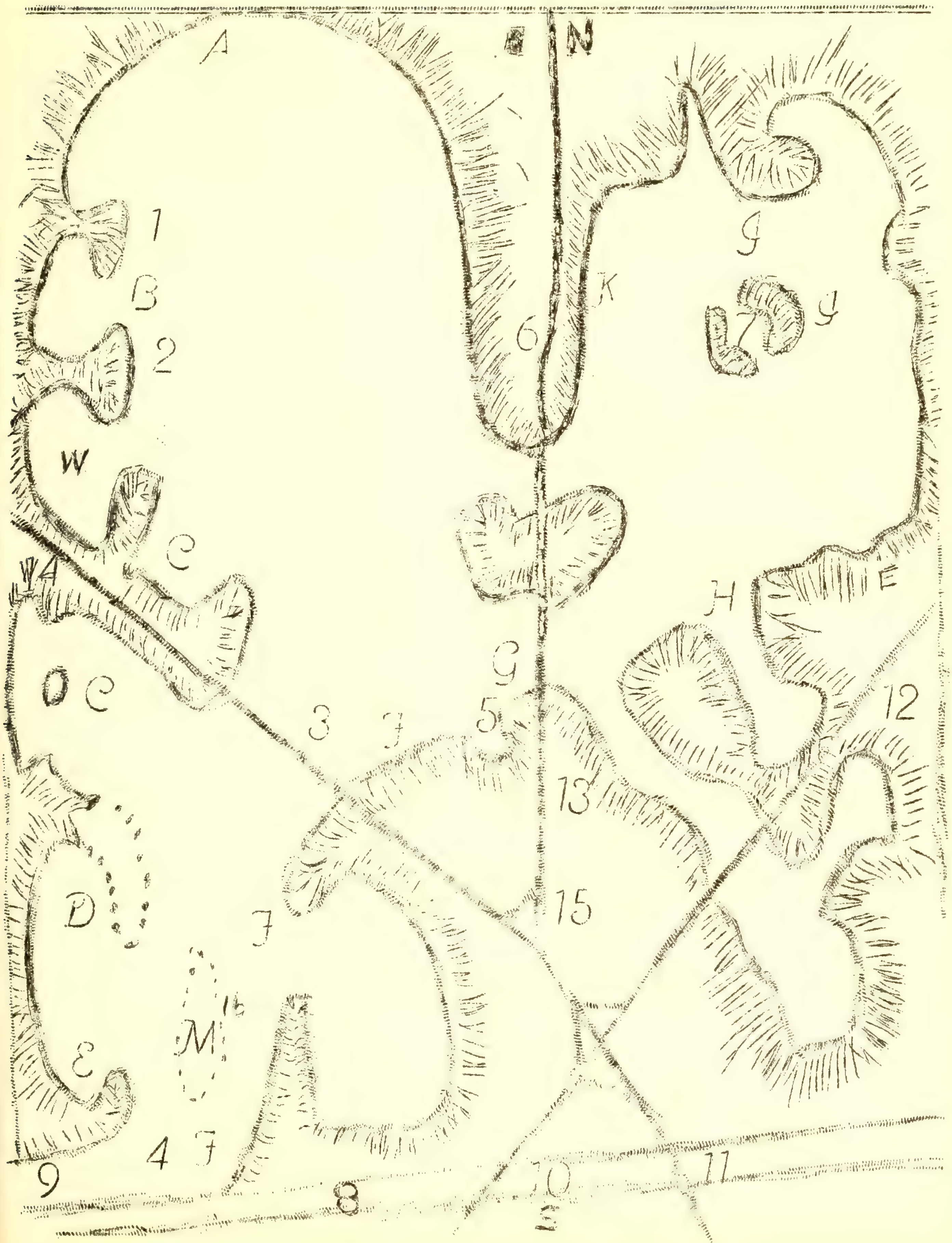
Since a new shore line has been established in Mission Bay in the last three years our observations have been that the old Molluscan forms now rarely seen will again appear. New forms will also make their home in the bay area. Plant life is again gaining a foot hold along the new sand bars and mud flats. This evidence leads us to believe that in the not too distant future Mission Bay will again become good collecting grounds.

TYPES OF SHORE BOTTOMS

A- Shallow, sandy, muddy-some eel grass in spots
B- Santa Clara, El Carmelto Channel bridge, all sand, eel grass in spots
C- Bonita B ay, sandy bottom
D- Rocky shore line and bottom; sandy and mud in spots, also eel grass
E- Rocky, kelp covered, sandy all way to Ocean entrance
F- Harbor entrance to Dana Landing all sandy bottom and shore line
G- Sand and mud flats
H- Dana Landing to East shore line-sloughs, mud with light cov. sand from dredging. Eel grass beds
I- Entire east shore line mud at low tide; spots of eel grass, entire area shallow
J- Sandy beach, dredged in -
K- North east side Crown Point, sandy shore with some rocks but muddy away out at low tide - shallow area
L- Sandy shore line, dredge in; shallow area & muddy away out at low tide
M- Sand Bar, uncovered at low tide-soft bottom in spots, can be walkd on, in most of the bar with safety.
N- Flood control channel. The new San Diego River Bed.

NAMES OF PLACES ON MAP

1. Santa Clara Point-Recreational center; food; bathing; boating; swimming &picnic
2. El Carmel - sailing, boating, fishing
3. Chanel Bridge
4. Outer Harbor entrance
5. Dana Landing; boats, fishing
6. Crown Point
7. Wild Life preserve
8. Flood control channel - the new San Diego River bed
9. Pacific Ocean
10. Bridge to Ocean Beach
11. Same as Number 8
12. Sunset Blvd. from Ocean Beach to Highway 101
13. Causeway Road
14. Mission Beach Amusement Center
15. Clover Leaf, Stop and Go signals
16. Sand bar at Low Tide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WEST COAST MURICIDAE

The following two letters will be self-explanatory, the first from John Q. Burch to Dr. H. A. Rehder and the second from Dr. R. Tucker Abbott to John Q. Burch.

Dr. H.A.Rehder,
U.S. National Museum
Washington 25, D.C.

July 15, 1952

Dear Dr. Rehder:

We will greatly appreciate any assistance you may give us in solving the confusion regarding the molluscan names - Murex petri, rhyssa, carpenteri, etc.

Of course, in the first place we all know that they are not Murex s.s. and I have been using the name Pterynotus for them, but without being too happy about it.

Several years ago our friend Mackenzie Gordon, now with the USGS visited your museum and studied the type of petri, which he reported was the species we have been calling rhyssa. T hen at the recent meeting of the AMUPD Dr. Stillman Berry stated before the group that on a recent visit of his, you both together located the correct type of petri and that it is a smooth shell, etc.

I know that we would all of us thank you sincerely if you could send us a photograph of the true types of rhyssa, petri and anything other you might have in this group. Is the type of carpenteri still there? I am asking this information not with a view of publishing anything on the group but merely to endeavor to get our nomenclature in some semblance of order.

I will briefly outline the group as they appear to Me:

M. petri - (or what I call petri regardless of its correct name) is a smooth brown shell, considerably more elongate than carpenteri lacking the recurfed wings, etc. Dr. Berry while a guest at my home recently saw my labels on this shell and said that in his opinion the shells I have so labelled are very close to the type he and you located. Naturally do not know because Dr. Dall mixed them up so that my labels were made from a process of logical eliminations rather than anything substantial. But anyway, I consider this adefinite group. Closer to carpenteri by the way than to rhyssa.

2. M. Rhyssa - This is our granular rough shell with the recurved wings. It is so very distinct from anything else that whether rhyssa or something else in name it is a well-known shallow dredged shell.

3. M. Carpenteri - The small winged form from Monterey. T his is very abundant in from 10 to 25 fathoms on the shale off Monterey, and inasmuch as Dr. Dall mentioned Monterey in his description it would be interesting to know whether or not this was his holotype:
Because: We have concluded that the Southern California shall (now in all collections as M. carpenteri also, is distinct from the Monterey form. As you may know Allyn Smith and MacGordon in their paper on the Monterey fauna concluded that they were distinct species and gave the southern form the name M. tremperi, (tremperi was named for a color form, which of course, means nothing at all other than that his name tremperi would stand anyway since he actually described and figured the shell). - However, another problem enters here too. Dr. Stillman Berry also named a color form calling his alba, Whether he applied his color name alba to the northern Monterey form or to the shouthern I do not know, but IF his alba was an albino form of the southern shell then his alba takes place over tremperi, because it was earlier.

Now I am not happy about having the carpenteri group divided so neatly in two species. I agree that they are separable but I am disposed to suspect that the southern form is simply a deeper water form of the same and perhaps should be a subspecies rather than a distinct species. Both Smith and Gordon disagree with me here and consider them distinct.

BUT whatever it is all about we cannot know the correct names for either until we know exactly what shell Dr. Dall considered the holotype of carpenteri.(You know in the description he simply states Monterey - also Santa Barbara to San Diego). By so doing he really mixed it up a bit if the Monterey shell is to be another species from the Santa Barbara to San Diego shell."

signed - John Q. Burch -

Mr. John Q. Burch,
Los Angeles 62

July 31, 1952

Dear John: /SHELLS

Since I had gone over the matter of Murex carpenteri et al for AMERICAN and was familiar with the problem, Harold Rehder asked me to answer your letter.

You will be interested to know that your concept of petri, rhyssa and carpentri corresponds to those of the types. The confusion of authors arose from Dall's vexatious habit of "swapping" better specimens in later type "figurings." Hence, his original type of petri 1900 (Nautilus, vol. 14,p. 37, 65mm. in length, San Pedro; Oldroyd) is USNM 183056. However, in the 190 2 Proc. USNM (p. 532, pl. 34 fig. 7) he figured a different shell (USNM 122553). The latter specimen is not from San Pedro and Oldroyd, as his sentence before would imply. It is from Albatross station 2972, 61 fms., off Santa Barbara. In actuality, the petri of 1902 (pl. 34, fig. 7) is much closer to the type of rhyssus, and by token of the fimbriations on the posterior side of the varices, would be identified by most people I am sure, as a rhyssus.

M. rhyssus Dall 1919 (Proc. USNM, p. 332) has the distinction of being curatorially pure. The type is USNM 160500. It is well illustrated in Oldroyd 2, (2), pl. 30, fig. 1. (Smith's statement in Minutes 51, p. 34, note 7 that it is a figure of petri is erroneous.)

M. carpentri Dall (Nautilus 1899, vol. 12, p. 138) underwent the same treatment as petri. If the measurements in the original description dictate which specimen is to be the holotype (which Rehder and I do), then the holotype is not in the USNM, and is probably in the Button collection, which I believe, has been up for sale for some time. We do not seem to have the Arnheim specimen either. The Pt. Conception specimen (Albatross 2908, USNM 160023 is a 28-mm-long, worn, young, elongate, smoothish shell. Now, in 1902 (Proc. USNM, p. 532, pl. 34, fig. 9) Dall figured USNM 122596. This specimen was cataloged and was drawn by McConnell in 1891, and I suppose, therefore, was used by Dal l in the original description. Oddly enough, he did not mention its locality (Sta. 2934, off San Diego) in his original description. In his handwriting, the label bears in a different ink "carpenteri Call, Co-type." Since it is the only figured cotype (snytype of the west coast), it would be considered by some workers to be the "lecto-holotype by subsequent first figuring", if such a phrase may be used. I would say that Button's specimen if found, should be designated the holotype and deposited in some large museum collection; but, if lost, then our USNM 122596 specimen declared the lecto-holotype. One other point might be raised: the above "lecto-type" (122596) comes from a southern locality, whereas all the localities mentioned in Dall's original description are northern ones. But, for that matter, B utton's specimen is only assumed to be from Monterey, and might be the Southern form also.

Zoologically speaking, I am unimpressed with the morphological differences between the supposed northern and southern forms. Some workers are very generous with the variations attributed to some rachiglossates, such as Thais lamellosa

variations attributed to some *rachiglossates*, such as *Thais lamellosa*, but are quite niggardly in allowing the *muricids* and other "collector's" items" the same degree of variation. In the Western Atlantic, we credit *Murex beaui* and *bequaerti* with more morphological imagination than do you people with the *M. trialatus* group. My inclination (for what that may be worth to you) is to recognize two species: *M. erinaceoides Val.* with the subspecies or perhaps ecologic variety *rhyssus Dall*, and the species *M. trialatus* Sowerby with the subspecies *carpenteri Dall.* The latter subspecies may be broken down into a number of forms such as *tremperi* Dall (*petri* being a broken and slightly malformed tremperi), *alba* Berry an and others as new variations in color, sculpture and state of preservation are discovered. Let me add that I am sure that with more material on hand, I could change my mind. - For instance, *M. rhyssus* with its fimbriations (this form or subspecies is not always as heavily corded as is the type) could be allied to either *erinaceoides* or *trialatus trialatus*. Bill Emerson, while here, connected it with the former, Gordon with *petri* (or *trialatus carpenteri*, as I call it).

You will notice I still use *Murex* as a genus. From a world-wide recent and fossil standpoint, I think the so-called genera now in popular use by scientific revisors are too nebulous to give us a satisfactory and reasonably stable system of generic names. They are akin to the Pecten subgenera and sections. But everyone to their own opinion, I guess.

We'll have photos made up soon of the three forms you are interested in, and we would appreciate your forwarding the extra set (of the two sets we send) to Hertlein or Keen. If you have any extra lots of the northern form of carpenteri, we would appreciate having our collection get a modern shot in the arm.

signed - R. Tucker Abbott -

NOTES ON COLLECTION AND STUDY OF BARNACLES

by Frank Lee Rogers,
California Academy of Sciences
San Francisco, California

Before 1830 many conchologists thought that barnacles were mollusks, and collected them. Now they are known to be crustaceans, of the class Cirripedia, but still conchologists collect large numbers of them involuntarily, since they settle and grow on a great variety of marine shells. The conchologist may become interested in the barnacle group and desire to know more about them, or he may want to aid someone who is studying them, which he can do by letting him remove the unwanted barnacles from the shells.

Two primary things should be observed: First, to see that the four movable plates of the barnacle's top opening are present, since they are a chief factor in identificayion; Second, to write down all available data, including locality, date of collection and tide level where found. In field collecting, besides being found on shells, barnacles may be found at low tide on rocks, kelp, piling, ships in dry dock, or even on a stranded whale. The buoys which the Coast Guard brings in for cleaning often have a rich fauna of barnacles and other forms. Once I found a lot of pectens inside the tube of a whistle buoy.

A good barnacle-collecting outfit is a valise containing a stiff stainless-steel knife with the end cut square and beveled, a weight of some kind to use as a hammer on the knife for specimens too firmly based to pry off, a few screw-top jars, and a couple of paper towels for the hands. A small camera may sometimes be desired for records. When the tide tables show a low tide, stormy conditions offshore may nullify this by the larger and more active wave action at the beach,

but inside a bay, good collecting may be had.

When collecting, it is good practice to bring home some living specimens if possible, either by prying them off carefully so that they are not damaged, or by prying them off carefully so that they are not damaged, or by picking up small stones or shells having them on. A dead shell is preferable. When these are placed in a shallow dish of sea-water that allows use of a strong hand lens, facts which have hever been recorded may be seen. For instance, color is generally considered a poor character for identifying, but in a certain subspecies of Balanus glandula (which I have not yet described) the blood-red color of the opercular membrane appearsuniform and invariable more than the other characters of the shell and plates. In the central San Francisco Bay area, if there are placed in sea-water for observation specimens of Balanus glandula, B.crenatus, B. amphitrite and B. improvisus, even if they are covered with dirt on the outside, when they open their plates, each can be identified instantly by the color and markings of the opercular membrane alone, by one familiar with them. The manner of using the cirri is often distinctive. The local Chthamalus operates its cirri in feeding very differently from any Balanus so far observed. And two subspecies of Balanus improvisus can be separated by the manner of operating the cirri, in two local forms. Of course, little appears to be known of these things, to judge by printed records; though I have seen comment on the beauty of the membrane of B. tintinnabulum californicus, which displayed in the sunlight is rich in many hues.

When study and observations on the living specimen are completed, possibly after some days, it may be placed in alcohol. Then the animal is removed from the shell, examined carefully and notes taken, and perhaps photographed; it is assigned a research number, which corresponds to a filed slip containing all data on it available. These numbers are from a typed lot of several hundred numbers photographically reduced to half size, or as small as wished, with one master print from which numbers are scratched off as assigned. Duplicate prints are used to put in the vial with the animal and to accompany all parts of it. Specimens that are mere collection items are given only a locality number.

The shell and plates are placed in Sanichlor, a very active bleaching fluid, which does not affect most barnacle shell colors, but does consume every particle of organic matter from a small specimen in about a day or two, leaving the plates cleaned and ready to be mounted. To do this, they are rinsed well, with care not to lose the terga of small species, dried, and placed on a micro-slide with adhesive, in the natural position of terga and scuta, one pair with exterior sides, the other with interior sides. At the top of the slide is glued the name, locality number and research number.

Identification of barnacles is not always a simple matter, especially for a beginner. To find out if the radii are porous, or if tubes or septa are present, requires filing or breaking a compartment. Also the group is greatly variable and some characters called for by the key may be in some specimens lacking or obscured, However, one who has worked for a few years with the group can identify most species of the locality at a glance. The most difficult to identify are those which have never been described, for one has to name them himself, after searching all available literature, and passing judgment on distinction between normal variation and consistent departure from the normal.

There is need for more thorough collection and intensive study of variation in many localities, to prepare the way for a more complete reference book on the Cirrepedia than any now available.

MINUTES OF THE CONCHOLOGICAL CLUB OF SOUTHERN CALIFORNIA, HELD AUGUST 5, 1952, at 7:30 P.M. LOS ANGELES MUSEUM, EXPOSITION PARK, LOS ANGELES, CALIFORNIA

CALLED TO ORDER: The President, Dr. Arthur Howard, called eighteen members and four guests to order at 7:40 P.M. We were pleased to welcome two new members, Mr. and Mrs. R. S. Woglum, of 705 Arden Road, Pasadena, California.

REPORT OF COMMITTEES:
FIELD: Mr. George Kanakoff reported that Mr. L. Bessom has returned from his trip to Mexico and will have some very interesting material to show us at our next meeting.
NOMENCLATURE: Mrs. John Burch reported from the last Nautilus: A new Subspecies of Pecten Gibbus (L.) by Gilbert Grau.
Dr. H. Hill reported on an article from Johnsonia by William. J. Clench and Ruth D. Turner.
Mr. E. P. Chace showed us a newspaper clipping from the San Pedro News: "New World found in Sea" by Jim Thomas.

CORRESPONDENCE: A letter was read from Hildegarde Harvard, Chief Curator, Division of Science of the Los Angeles County Museum, hoping that the Club was finding the facilities of the Museum satisfactory for its monthly meeting. Also asked that the group be out of the building by 11:00 P.M. It was voted that the Secretary write a letter of appreciation for the privilege of having our meeting at the Los Angeles County Museum.

Miss Coats passed a paper around for members of the Pacific Division of the American Malacological Union to be signed if in favor of changing the title of the organization, to the American Malacological Society or Association.

Miss Coats told us that a Conchological Club is being started in San Diego County. The meetings will be held informally for a while, to meet in homes of members.

PROGRAM: The round table discussions were continued. The subject being The Pacific Coast Species of the Genus Ocenebra-Gray. Mr. John Burch lead out in the discussion, showing various species. Others joined in the discussion and all felt they had received interesting and valuable information.

Miss Ruth Coats announced that the Thais Group would be the subject for our next meeting.
The meeting adjourned at 9:15 P.M.

Signed: Bessie Falconer, Secretary
236 1/2 Bailey St.
Los Angeles 33, California

SEPTEMBER MEETING

Members and others interested in Conchology are invited to attend the September 2nd meeting of the Conchological Club of Southern California. Miss Ruth Coats will give a report on the A. M. U. meeting held in August at Cambridge, Mass.

Subject for September meeting - The West Coast species of Thais.
Bring your shells and join in the Round Table discussion.
= REPORT ON COLLECTING TRIP IN MEXICO, by L. C. Bessom - -

NEW PUBLICATIONS RECEIVED

The Nautilus, Vol. 66, July,1952 No.1
Notes on Nesta (Laevinesta) atlantica , A Floridan Fissurellid Mollusk By Henry A. Pilsbry and Thomas L. McGinty.
Ciliary Feeding in Pomacea paludosa (Say) By Bert M. Johnson
Carychium exiguum (Say) of Lower Michigan; Morphology,Ecology, Variation and Life History (Gastropoda Pulmonata) By Harold W. Harry
The Duxbury Bay 1950 Set of Mya Arenaria L. By Henry D. Russell.
The Land Snails of Pittsylvania County,Virginia By Leslie Hubricht
Some Land Shells from Japan and the Maritime Province of Siberia By Walter J. Eyerdam.
The Shells of Pyramid Lake, Neveda By Morris K. Jacobson.
A New Subspecies of Pecten (Plagioctenium) gibbus (Linne) By Gilbert Grau
Observations on the Genus Schizothaerus By Emery F. Swan and John H. Finucane. This is a very interesting paper to those of us who have collected and studied the two forms along this coast. It is indicated by the work of the authors although they do not so state that the two are really distinct species. Certainly they are separable in the same habitat. *S. nuttallii* and *S. capax* . The majority have been disposed to make the latter a subspecies of the former.

Notes On the Freshwater Mollusks of Yellowstone Park,Wyoming By Dwight W. Taylor. A well written paper of seven pages and a page of plates.

Description of a New Pelecypod of the Genus Lima from Deep Water off Central California By Leo George Hertlein- *Lima* (*Acesta*) *mori* .
Shells from the Bird Guano of Southeast Farallon Island,California With Description of a New Species of Liotia By Allyn G. Smith- *Liotia farallonensis*
A Rare Species of Chiton from Pioneer Seamount Off Central California By A.G. Smith and G.D. Hanna
The above three papers are from Proceedings of the California Academy of Sciences, Fourth Series, Vol. XXVII, Nos. 11,12,13,14,15. They are well illustrated and of great interest being additions to the fauna of the California coast.

An Illustrated Check List of the Marine Mollusks of Texas By T.E. Pulley. This should be invaluable to any worker with the Texas fauna pp 167-199 and 13 plates each illustrating numerous species. This paper is in the Texas Journal of Science Vol. IV, No. 2 . Whether this issue is available separately I do not know but the editor is Dr. J.L. Baughman, Texas Game, Fish and Oyster Comm.,Rockport, Texas.

Report of the Director- for the year 1951 - Chicago Natural History Museum. This is a beautiful report with fine illustrations of the multitudinous activities of this great institution.

Le Helix Dei Dintorni Di Catania - By Dott. Ing. Ottavio Priolo 1942 with Supplemento A " Le Helix" 1948 4to 54pp and 2 pp
Carefully prepared with extensive synonymy.

A Molluscan Fauna From the Mernoo Bank, New Zealand by R.K. Dell, Dominion Museum, Wellington. New Zealand Journ. Sci. & Tech. July 1951. Some Animal Communities of the Sea Bottom from Queen Charlotte Sound, New Zealand- do- Jan,1951
A Deep Water Molluscan Fauna from the Tasman Sea- Dominion Mus. Rec. in Zool. No. 10
New Species and Genera of New Zealand Land Snails with a Revision of the Genus Cavellia- Dominion Mus. Rec. No.9
A Revision of the Molluscan Fauna of the Hurapi Beds, Southern Wairarapa- Dom. Mus. Rec. in Zoo. No.8
Otoconcha and Its Allies in New Zealand- Dom. Rec. Zoo No.7
A New Species of Squid, Histioteuthis cookiana from New Zealand Waters- Zool. Pub. from Victoria Univ. College No. 14, Dec. 1951
* Note* Copies of any of the above papers by Dr. Dell are available from John Q. Burch- 50¢ each
also A Deep Water Molluscan Fauna From Off Banks Peninsula
From Rec. Cant. Mus. Vol. VI, No. 1

Brachiopoda from Jizodo,Chiba Prefecture by Kotora Hatai
Tertiary Paleography of North Japan by Shoshiro Hanzawa
On a Sand-pipe from near Sendai by Kotora Hatai
Two New Japanese Tertiary Brachiopoda by Ichiro Hayasaka and Kotora Hatai
On the Occurance of Dosinia tatuno-kutiensis Nomura from Hokkaido by Kotora Hatai and Sinzi Yosida
A New Miocene Glycymeris from Japan By Kotota Hatai and Syozo Nisiyama
A Lower Cretaceous Teredo By Kotora Hatai
On a New Fossil Brachiopod from Mindoro Island By Kotora Hatai
A Problematical Fossil from Yamagata By Kotora Hatai

Genera of Japanese Shells By Tadashige Habe- To date , May,1952 3 parts of this valuable work have been completed. The paging runs in order so that there are to date in the three parts pages 1-278 with text figures 730, It is systematically arranged with the work to date on Pelecypoda. This will be a very valuable work when completed. The work to date may be had from John Q. Burch for $4.80 and future issues sent if desired.

Check List and Bibliography of the Recent Marine Mollusca of Japan By Tokubei Kuroda and Tadashige Habe. This is a genuine contribution to science. The list includes 1048 bivalves, 2313 univalves and 34 scaphopods . The invalid names are indicated and in short it is an indispensible work for anyone working with the fauna of Japan.

* Note* It is for sale by the publishers in Japan for $4.00 with no discount to dealers. The reason this is mentioned is that you may be advised that it is possible to buy the book direct from Japan for $4.00. John Q. Burch will mail a copy immediately for $5.00 postpaid. We all have to live and as you know such prices are usually arranged by publishers so that the rate is identical with both publishers and dealers. When otherwise it will be mentioned.

MINUTES 123
OCTOBER 1952

CONCHOLOGICAL CLUB OF SOUTHERN CALIFORNIA

Subscription $2.50 per year

We are now meeting the first Tuesday of every month at 7:30 P.M. at the Los Angeles Museum, Exposition Park, Los Angeles, California. All interested persons are cordially invited.

Please mail all news to your editor- John Q. Burch,
1584 W. Vernon Ave.,
Los Angeles 62, Calif.
Telephone Ax 3-5710
Home-Ax 2-7965

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More About Publication - John Q. Burch

An entertaining paper recently came to my desk. The author, a well known writer and professor of zoology urges that all recently described species of Mollusca be declared invalid because the descriptions fail to include anatomical figures. The doctor maintains that no person who has not been thoroughly trained in microtecnique should have the temerity to name a new species etc. etc. An amusing sidelight was an accompanying note stating that when he sent very carefully prepared alcoholic specimens of mollusks to one of the most prolific of conchologists in an eastern university , the soft parts were naturally thrown away and the shells returned to him. The only really amusing thing about this to me was that the man mentioned has been disposed in his turn to refuse to consider valid all descriptions of new species not made on the same quality of expensive paper enjoyed by his multimillion dollar endowed institution of marble halls.

I do not mean to offend either of the worthy doctors, both correspondents of mine.

(continued on page 7)

August 25, 1952

Dear John:

You will be receiving a verbal account of the Eighteenth Annual Meeting of the American Malacological Union, for your able ambassador was with us, and Ruth Coats misses nothing. However, let me also tell the unofficial story of a most enjoyable event.

The weatherman loves malacologists, for New England enjoyed four perfect, sunny days while the rest of the country got welcome rain. Cambridge didn't need it, for the abundance of ivy on those old red brick walls of Harvard never looked lovelier.

Bill Vlench and Ruth Turner of the Museum of Comparative Zoology were on hand to greet their guests at registration time, Wednesday morning, August 20. By noon people from twelve states (and ¡Texas!)had signed the book, along with residents of Canada, Puerto Rico and Venezuela.

So it was with nearly a full house that the meeting was formally opened, presided over by President Jeanne S. Schwengel. Dr. Alfred S. Romer, Director of M.C.Z. bade us welcome; Dr. Schwengel voiced our thanks to him and to the Museum staff, then introduced these speakers and their papers.

Thomas E. Pulley, "Distribution of Mollusks in the Gulf of Mexico," Richard W. Foster, "A Shell Collector in Tobago;" R. Tucker Abbott, "New Federal Regulations on Importing Mollusks;" Ruth D. Turner, "New England Malacologists;" George M. Moore, "Nudibranchs of New England."

That evening we met at Hotel Commander for the annual dinner, following which we enjoyed a lecture on survival in the jungle by Dr. Richard Howard, Professor of Botany at Harvard University. If any of you folks care to learn the best way to cook a snake or to sleep on a rack in a mangrove swamp, just ask Ruth.

The second day was wholly given over to papers, with the exception of the business meeting at which time the following slate of officers was unanimously elected:

President - Dr. A. Byron Leonard
Vice President - Dr. Joseph C. Bequaert
Secy.-Treas. - Mrs. Margaret C. Teskey
Councillors-at-Large, Mr. R. Tucker Abbott, Dr. Carlos G. Aguayo,
Miss Ruth E. Coats, Miss Ruth D. Turner

A letter had been received by the Council in which Vice President Imogene C. Robertson resigned her office for reasons of ill health. Mrs. Robertson's resignation had been accepted with regret, and an honorary Life Membership had been bestowed upon her.

It was also announced that due to action taken by the Council, it is now possible to purchase life membership for the sum of $25.00. A Resolution to change the name of the American Malacological Union to American Malacological Society was tabled until the next annual meeting.

Herbert Athearn, "Some New Records for Naiades from Eastern North America;" Joseph C. Bequaert, "The Family Clausiliidae in West Africa;" Henry van der

Schalie, "Ecology and Distribution of Lymnaea (Bulimnea)Megasoma in Michigan;" R. Tucker Abbott, "Opportunities in Medical Malacology;" Emile Abdel-Malek, "Studieson the Family Planorbidae;" Margaret Teskey, "The Buffalo Meeting;" J. Lockwood Chamberlin, "Trans-Panamic Distribution of the Mactridae;" William J. Clench, "Taxonomy in Modern Biology;" J. Lockwood Chamberlin, "Aerial Orientation in Achatina," Merrill Moore, "Sea Shells as Occupational Therapy Material in Mental Hospitals;" Ruth D. Turner, "The William F. Clapp Laboratories."

That evening we were all treated to another of General Frank and Dr. Jeanne Schwengel's famous parties. These affairs have done more to promote real congeniality in the A.M.U. than any other one factor, I do believe. You and Rose (and the rest of the A.M.U.P.!) must really come east some time and see for yourself.

Friday brought the field trip, the winder-upper for another year. Taken to Duxbury, Mass. (35 miles south of Boston) in private cars, we were treated to a conducted tour through the William F. Clapp Laboratories. This place has a world-wide reputation for the work done there, research not only on boring and fouling mollusks, but on salt water corrosive effects on various metals, rope, and other marine material.

Picnic lunches were spread upon the lawn, then the crowd broke into parties and scattered according to inclination; some enjoyed a ride about the Way in the laboratory boat, others chose to collect in a nearby fresh water pond, or to beachcomb, while at least two cars bore visitors to the biological marine station at Woods Hole, Mass.

Yes, John, it was a good meeting, and the best attended to date. One more observation: Hospitality in this big country of ours is the rule, not the exception. You folks are given to making the stranger welcome, as I had occasion to learn at Pacific Grove. They treated us well in Florida and in Chicago, and in Pittsburgh. We tried to do right by the folks when they came to Buffalo. But the New Englanders have a flair for that sort of thing, too, and the Clench-Turner combine had laid their plans so well, and events moved along so smoothly, that we forgot entirely we were being entertained. That's real hospitality!

The placeof next year's meeting hasn't as yet been decided, but wherever it may be, do try to attend. We'll be seeing you.

Sincerely,
Margaret Teskey
Secy. American Malacological Union

THE ECOLOGY OF THE WEST COAST MARINE INVERTEBRATES

by
ANDREW SORENSEN

Ecology in the narrowest sense of the word means only the location or habitat of the animal under discussion, while in its broader and more important sense it includes the description of the environment, which practically determines the nature of the animal and the reason for its being found where it is.

Invertebrates are a class of animals with soft bodies and no internal skeletons. Therefore, they nearly all have an outer protecting shell composed of lime or a horny substance. In size they vary so greatly that one may find them from nearly microscopic mollusks to arctic king-crabs with a legspread of several feet. In prehistoric times some were much larger as shown by fossil ammonite the si_e of a cartwheel. Some are found in the ocean, some in fresh water and some on land.

The most important groups of the marine invertebrates are the Mollusks, the Crustacea and the Echinoderms. They all live in such different places and under such different conditions that this study becomes, not only an interesting one but also, an extensive one and as there is so much that should be described it becomes difficult to know the best way to present it.

Invertebrates produce eggs which hatch into freeswimming larvae. The larvae of the ahliotis settles to the bottom very quickly, thus preventing the ocean currents and the surface winds from carrying it to new locations. Haliotidae, locally called Abalones, are found from Alaska to Cape San Lucas, but with the exception of a very small one from Galopagos Islands, there are none on the West Coast of Central or South America. Neither are Haliotidae found on the East Coast of North America or South America although it is reported that many years ago two extremely small specimens were dredged off Key West, Florida. The quick settling of the larvae, as above mentioned, no doubt is the cause of the Haliotis' limited distribution. It is one of the few species that has survived in its present form from prehistoric times.

Besides the movements of the swimming larvae there is also some changing of location by the adults. Crabs, Lobsters and shrimps are constantly on the move. The Gastropods, snail-like mollusks, many of whom are predators, crawl about on the rocks or sand or, perhaps deep in the sand, where polinices, murexes and olivelidae all feed on the hapless clams. The starfish is strictly a predator and feeds on any animal it can get. It inverts its stomach and wraps it about the prey until digestion is finished and the empty shell discarded. The oyster beds are especially punished by such inroads. Yes, even the clams in the mud or sand move some by means of their hatchet-like foot. One species of clam, the large Cardium elatum, which is nearly globular in shape and reaches a size of six inches in diameter, frequently comes to the surface at low tide. By means of a sudden jerk of its foot it is able to jump twelve inches away from the hole it came out of. On the West Coast of Mexico where it is found it has been nick-named Johnny-Jumpup.

Now that we know that constant changes are taking place we should examine some of the causes. A constant striving for improvement is necessary, otherwise the individual would fall behind in the struggle for existence. The stronger and fitter are monopolizing the places where food is most plentiful. As the stronger animal is able to get away from the more crowded areas and perhaps move into shallower water and nearer the shore it finds a better oxygen

supply, more light and more of the floating Plankton, the primary food of the teeming life of the ocean. Plankton is almost the exclusive food for clams, mussels and barnacles.

The myriads of fishes (sardines, herring and many others) that feed on Plankton are of great economical value to man. A few years ago fishermen took in one year more thatn five hundred thousand tons of Pilchard, a Pacific sardine, on the California coast. Pilchard fishing and canning is stilla great industry there.

That calls attention to man's selfishness in upsetting the Balance of Nature. The Tivela stultorum, commonly called the Pismo clam, formerly lived in enormous numbers on gently sloping sandy beaches in Central California. It grew to a size of 5 to 6 inches and had shells so heavy that it was safe from common predators.

But Man, the greatest predator of all, wanted them for profit, so he started canning them. They were easy to get at low tide. He first dug them, then plowed them up, both big and small, till they were nearly all gone. Then the authorities stepped in and stopped canning and marketing. They closed some districts for many years and provided other districts where sportsmen, during an open season, might take a limited number of not less than five inches in size. That did some good and the Tivela stultorum has again become pretty well established.

We have a still more sordid case where Man seriously interfered with Nature's arrangement. The giant abalone, Haliotis rufescens (Swainson), once was very plentiful on our west coast. It feeds on algae out to a hundred or hundred and twenty feet deep. That is feet, not fathoms, as some have wrongly claimed. It takes light to make algae grow and enough light does not penetrate deeper.

Before there were any restrictions large camps of Chinese took thousands of these abalones, cured and dried the meat, and sent it to China in ton lots. This was finally stopped. Then came the commercial abalone fisherman, mostly Japanese. They used modern diving gear and worked from twenty feet depth near the shore out to as far as they found abalone. The best part of the Coast was open to them with no limit on the quantity they could take, just so the shell was eight inches or over in size. Sportsmen along the Coast may take only five a day of seven inches or over. It is no wonder the Coast is nearly depleted.

In spite of so much punishment the Invertebrates, on the whole, are holding their own, chiefly due to their wonderful reproductive powers. For example: A large female oyster can produce a million fertile eggs a year, though fortunately, only a small percent of the young reach maturity. Where one group has diminished some other group may have increased. Vacuums don't last long.

As animals move to places having different physical conditions it is only natūral that they should assume different characteristics to fit their new surroundings. A crab from deep seawill die quickly if put in abucket of fresh water while one taken from brackish water will showno discomfort.

Crabs that have reached the tidal pools act quite differently. The Cancer antennaria and the Cancer productus prefer to stay concealed in the water. The Hemigrapsus mudus comes out of the water at times while the Pachygrapsus

crassipes stays out of the water while the tide is low and if frightened, backs into a crevice rather than seeking refuge in the water. And still progressing upward, we find the beautiful little ghost crab Ocypode occidentallis racing about on the sandy beaches of the State of Sonora, West Mexico. It quicly digs into the wet sand if pursued instead of going back to the water for protection. Even further advanced terrestially is a large merit crab which lives in droves on some otherwise unoccupied small islands in the Caribbean Sea. They stay there the year round, except for a brief time in the spring when they flock to the water to lay their eggs. The eggs hatch and the young live in the salt water. The evolution of this crab has gone far, but it is not yet a land animal.

The gastropods are more slow-moving than the crustaceas, but in spite of that, some gastropods have, through the ages, found their way to the tidepools and some even to land. These have changed their breathing organs so much that, in addition to the gills, they have an air sack or lung. The still more advanced have discarded the gills and breathe with lung only. They are classed with the order Pulmonata, the lung breathing mollusks. Many of them live in fresh water and raise to the surface to breathe.

Others live permanently on rocks above high tide where the spray from wave action at high tide furnishes them with both moisture and food. The Siphonaria, a limpet-like small mollusk, has both gill and lung, hence it can live comfortably in the intertival zone, either in the water or on land.

On the rocky shores of Monterey Peninsula various species of Littorinas are quite common. They adhere in numbers to the steep sides of rocks above high tide and do not enter the water. The spray from wave action gives them their food. On the same level, but not so exposed, we find Gadinia reticulata, the so-called Netted Button Shell. On account of its small size, it is able to occupy narrow rock crevices, but it, like the Littorina, must depend on what food the spray brings it.

There has been a mistaken belief that the Gadinia always lived below low tide level, but that was probably caused by the finding of dead shells on sandy beaches where waves had brought them, and perhaps also by the difficulty of locating the live animals in their rocky crevices.

But be that asit may, the fact remains that the Gadinia is practically a land animal now, and there may be in the distant future, Land Limpets in addition to our present day Land Snails.

Nothing seems to be stationary!

(con, from page 1)

But in regard to the first, I am compelled to state that I have before me on my desk a very beautifully printed description of a new species of mollusk including figures of the anatomy, all printed on the finest of paper by one of the great institutions. But I also have the results of not one but three well qualified zoologists who have dissected the same mollusk with vastly differing conclusions. So it is now determined by the thoughtful at least that the first beautiful anatomical dissection etc. must be merely relegated to the synonymy as is any other casless work. I could perhaps write a paper re the numerous cases wherein those devoted to anatomical work have gone ' that away'. As a dealer in such papers I am compelled to come in contact with such absurd things. So the mere fact that some student dissects the soft parts of a snail and comes up with something fantastic in ' glossy print' means no more to me than the vast lot of other nonsense regularly poured out by some of the so called ' infallible'.

If this view of publication were to be accepted it is obvious that the work of all paleontologists would be automatically ignored.

However, in my opinion, few papers fail to contribute something to our general knowledge of the species studied even though the name may go into the synonymy. In fact, a great deal of the most valuable information may be found in descriptions declared invalid for other reasons.

The United States of America has become the greatest nation on earth chiefly because our people have not been hampered by an aristocracy either political or scientific. The idea of creating a closed corporation outside of which no scientific thought will be permitted should originate in some other country, not the United States.

I am reminded of the grammar school I attended as a boy in Texas. It was the Lamar School and carved in marble over the entrance was the inscription " Cultivated mind is the only security that freemen desire and the only dictator that freemen acknowledge".

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Professor Trevor Kincaid, 1904 East 52nd, Seattle 5, Wash.

The following excerpt from a recent personal communication is of interest, " I notice your group is planning a pow wow over Thais at the next meeting. I wish I could be there to listen to the pearls of wisdom that drop from the lips of the intelligencia. Now that I have completed my paper on the fresh water copepods, I am limbering up to tackle my Thais material. I must have over 20,000 specimens. On reviewing Dall's paper of 1915 I was interested to note what a fine approach he has to the problem of variation in this species, Thais lamellosa etc.

I am inclined to think in view of what we find in the case of Thais that in the future we will have a great reduction in the number of species recognized since many of these will be relegated to the synonymy or recorded as varieties or subspecies. The number of species of birds has been reduced by 50% during the past 25 years, and the same is true of mammals. The three species of fur seals named by Jordan have been reduced to one. The general trend in taxonomy seems to be in the direction of looking for similarities rather than minute differences. A new approach from the standpoint of genetics and the recognition of isolating factors such as micro-geographical distribution is bringing about a new phase of systematic zoology. A glance at the synonymy in many groups of animals is quite enlightening"

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Tectarius sp.- An interesting batch of these large shells from Zamboanga, Philippines came in with a recent freight shipment. The shells are about 2 inches in height and about the same in diameter. I havent looked up the specific name of this variety, but they are certainly among the toughest characters in sea shells I have evr seen. They came packed in dry mahogany shavings and sawdust, the shipment was about two months getting here and then several weeks elapsed before they were finally unpacked. The interesting thing is that they were very much alive and after placing them in a basin of fresh water they really moved about seemingly in excellent health.

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Publications Recently Received

Description of a New Pelecypod of the Genus Lima from Deep Water off Central California- Lima (Acesta) mori Hertlein- By Leo George Hertlein.
Shells From the Bird Guano of Southeast Farallon Island, California with Description of a New Species of Liotia By Allyn G. Smith.
XXXXXX Liotia farallonensis A.G. Smith.
A Rare Species of Chiton from Pioneer Seamount off Central California By A.G. Smith and G.D; Hanna. Placiphorella (Placophoropsis)pacifica
Above from Proceedings of the California Academy of Sciences- Vol. XXVII, Nos. 12,13,14- July 11,1952.
Another interesting paper is Geology of the Continental Slope off Central California By G. Dallas Hanna No. 9.

Vitrinellidae of the Panamic Province:II By Henry A. Pilsbry and Axel A. Olsson. Proc. Acad. Nat. Sci. of Philadelphia, Sept. 10, 1952. pages 35-88 , plates 2 to 13. A number of new species are described and carefully and clearly figured.

Proceedings of the Malacological Society of London- Vol. 29, part 5, 29 August, 1952. A number of really interesting papers in this issue.-
Emigrant British Snails (Presidential Address) By H.E. Quick
The mantle cavity in *Siphonaria alternata* Say. By C.M. Yonge
Pseudomelampus exiguus (Lowe). Designation of lectotype By B. Kisch
Verticipronus tristanensis n. sp. By T. Soot-Ryen
Observations on the ligament of *Nucula*. By E.R. Trueman
Notes on the Snails of North-East Tanganyika Territory By B. Verdcourt.

The following papers all published in Japan, IGPS, June, 1952 By Kotora Hatai and others-
On Some Lower Miocene Marine Shells
Additional Brachiopoda from Jizodo, Chiba Prefecture
An Interesting Fossil from Hokkaido

A number of different papers by Tokubei Kuroda in Venus, The Japanese Journal of Malacology Vol. 17, No. 1
On Callocardia guttata A. Adams and Vesicomya katsuae n. sp.
On the Verticordiidae from Japan- On Two New Species , Periploma ovata and Offadesma nakamigawai (Periplomatinae)
On the Vertical Distribution of Marine Mollusca by Katura Oyama
On the Molluscan Shells of the Shell-Mounds on the Coast of Prehistoric Tokyo Bay By Nakao Sakazume

Short review of the Land and Freshwater Molluscs of the North-East States of Brazil by S. Jaeckel- Dusenia:III(1), Dia 31 de Janeiro, 52

Basteria-Vol. 16, No.3, 15-VIII-1952 - The following papers-
Neue Funde von Vitrinidae von Lothar Forcart
On Bankia fimbriatula Moll & Roch in driftwood washed ashore on the Dutch Coast by W.S.S. Van Benthem Jutting
Lymnees introduites au Congo Belge par Edm. Dartevelle
Levende Chlamys opercularis uit de Oosterschelde door J.J.R. Walrecht
Pisidium georgeanum, une nouvelle espece africaine par J.G.J. Kuiper

Some Observations on Caribbean Coral Reefs by N.T. Mattox. Turtox News Aug.1952, vol.30, no.8. This is a very interesting paper. Dr. Mattox was at the time in the Department of Biology, College of Agriculture and Mechanic Arts, Mayaguez, Puerto Rico.

Since writing this paper though Dr. Mattox has moved to our state and is now professor of zoology at the University of Southern California, and director of the Hancock Foundation. We had the pleasure of a visit by him last week.

" Circulares" del Museo y Biblioteca De Malacologia De La Habana
M.L. Jaume- Calle 13 No. 351, Vedado, Habana, Cuba pages 546-563

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MINUTES OF THE CONCHOLOGICAL CLUB OF SOUTHERN CALIFORNIA HELD SEPT. 2, 1952, 7:30 P.M., LOS ANGELES MUSEUM, EXPOSITON PARK, LOS ANGELES-

CALLED to ORDER at 7:30 P.M. twenty members were called to order by the President, Dr. Arthur Howard

COMMITTEE REPORTS:

FIELD: Mr. L. C. Bessom, Chairman - no report.

NOMENCLATURE: Dr. H. Hill, Chairman; not present, no report

MEMBERSHIP: We appreciate having Mr. and Mrs. G. R. Grafton of Frazier Park, Box 127, California, join the Club.

EDUCATION: Dr. W. O. Gregg, Chairman; no report

SPECIAL COMMITTEE: Mrs. John Burch brought a bit of interest to our meeting by showing us a shell, tectarius, that was still alive after having a two months ride on a freighter from the Philippine Islands.

PROGRAM: As there was no other Committee reports the President turned the meeting over to the Program Chairman, Miss Ruth Coats. The program of the evening was divided in two parts. First Mr. L. C. Bessom gave a report of his trip to Guymas, Mexico, showing many different species of shells, some quite rare. All were collected below low tide. Mrs. G. R. Grafton was the fortunate one to receive the generous door prize that Mr. Bessom gave.

The second part of the program was the showing of several rolls of film. Mr. Chas. Allen from Hawaii visiting friends in Los Angeles, was most generous to loan Mrs. Burch his color film "Shell Collecting in Hawaii". From the beautiful pictures, we all felt that Hawaii would be a very lovely place to collect.

Miss Coats showed pictures she took when a group from the AMU meeting visited Niagara Falls. The group was seen collecting land snails along the bank, below the Falls.

All felt the program was not only interesting and instructive but very enjoyable.

It was noted that Mr. Charles Allen be written a letter of appreciation for the use of his color film.

The subject that had been announced for September will be the subject for the October meeting. The West Coast Species of Thais. Bring your shells and join in the round table discussion.

Meeting adjourned at 9:30 P.M.

Signed: Bessie Falconer, Secretary
236 1/2 Bailey St.
Los Angeles 33, California

MINUTES 124
NOVEMBER 1952
CONCHOLOGICAL CLUB OF SOUTHERN CALIFORNIA

Subscription $2.50 per year

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Please mail all news to your Editor: John Q. Burch
1584 West Vernon Avenue
Los Angeles 62, California
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Home - Ax 2 7965

* *

SITKA SOUND COLLECTING AREA

By

GEORGE E. LEMKE, MT. EDGECUMBE, ALASKA

The collecting area, Sitka Sound, is a unique situation in that so many different conditions are present in a single locality. The entrance to the Sound is between Biorka Island of the Necker Island group and Cape Edgecumbe, of Kruzof Island. The entrance faces the open ocean and under certain weather conditions, considerable swell develops. Also, not too far out at sea, the northern diversion of the Japanese current sweeps northward and is the source of the rain, fog and mild climate of this area. Cape Edgecumbe is a black lava formation and dangerous to approach. St. Lazaria Island is just inside the entrance to the Sound, near Cape Edgecumbe and is also of lava formation. This Island is a Federal bird sanctuary and as one approaches it, he is startled by the tufted puffins flying rapidly about the boat and from the deep caves along the shoreline. The caves and fissures extend for some distance into the island and many of the broad ledges are accessible at low tide level, and are good collecting spots. All the rocky shoreline

is kelp covered and slippery so that it is hazardous to land on the island. The accessible ledges fall abruptly into 19 fathoms of water. Biorka Island guards the opposite side of the entrance to the Sound. It is a long, low wooded island, the substrata of which is white granitoid metamorphic rock. It is at this station that white silica sand beaches occur. Sandy beaches at other stations in this area are of grey or black siliceous material. Also there are beaches composed of sandy shell and mud. There are numerous exposed reefs and rocks all through the Sound; some constantly swept by the ocean swell and others only affected by the gradual rise and fall of the tide.

The main collecting area is Japonski Island and adjacent islands connected by causeways built of broken rock. Since most of these were constructed ten years ago, the sea has worked caves into the exposed stretches, which are accessible at low tide. It is very interesting to crawl into one of these caves and lie on the rocks, looking down through the interstices into the water below, unhampered by overhead glare. The walls of these caves are covered by encrusting sponges, bryozoans and tunicates and the attendant free moving forms. It has been interesting to watch the gradual inroads of marine life in this tidal zone along the causeways since this area was sterile a few years ago. Mahknuti Island is at the extreme tip of the group and is surf-pounded. Ledges on it are covered with mussels and barnacles.

However, set in the rocksare deep tide pools that are in sharp contrast to the ledges about them. The walls of these pools are covered with sea anenome and encrusting sponge of many colors. Here are found nudibranchs and leafy hornmouths. The conditions on Biorka Island, below the Loran Station, and this spot are similar. However, the unbroken swells of the open ocean pound along Biorka, while Muhknuti Island lies in the Sound. Comparison of Purpura foliata from the two stations just described, indicates that the Biorka Island station experiences storms of sufficient violence to tear the animals loose and literally grind off part of the shell against the rock. Live specimens taken at the Biorka Station Have much of the beautiful sculpture ground away.

Between Mahknuti and Mogillinoi Island, there is a beach exposed at low tide that is sheltered by a high rocky reef. This is a rich collecting station. However, even at low tide, an occasional wave will break over the top of the reef. Westerly winds prevent collecting in this spot. Virublenoi Island has a quiet bay formed by its junction to the causeway. This has a sandy-shell beach at its head. Here are large quantities of eel grass that give way to ribbon kelp, in the deeper water. There are a number of caves at this point in the causeway that are rich in lithoide crabs.

Moore's beach is rocky with sandy mud and occasional patches of eel grass. It has one of the most varied collections of marine algae in the area. Virublenoi Island is second in this respect. The stretch between Moore's beach and Harbor Island is completely sheltered and centrally located and is indicated in the list of gastropods as Ramp, Hangar I. Very little swell reaches this point and it is disturbed only by the tide and wake of passing boats. Fruit Island is connected with the others in this last named group, only at low tide level and is very small--so small that the surf swirls completely around it and during storms, the water pours through a gap in its middle. The connecting bar at low tide is a narrow strip of sandy shell deposited where the surge of the currents meet as they come around the island.

There are two bays on Apple Island, one of muddy sand and the other having a rocky sand bottom. Both have reefs nearby. This is a very good collecting station but most of the shells are heavily encrusted. One of the interesting facts

about this spot is that Octopus apollyon is prevalent on the rocky beaches.

The gastropod list submitted consists of only those shells that have been checked and definitely identified. Specimens of doubtful identify have not been included. In the future more species and stations will be checked and added as well as seasonal movement of the organisms at a few selected stations.

LIST OF GASTROPODS
Sitka Sound
(Collected June 1951-June 1952)

Acmaeidae
Acmaea mitra Eschscholtz
Fruit Island
Virublenoi Island
Harbor Island
Moore's Beach
Mahknuti Island
John Brown's Point
Goddard, Warm Springs Bay
Apple Island
Biorka Island
St. Lazaria Island

Acmaea cassis pelta Eschscholtz
Sam Sing, Baranof
Biorka Island
Virublenoi Island
Acmaea persona Eschscholtz
All rocky beaches
Acmaea digitalis Eschscholtz
All rocky beaches
Lepetidae
Lepeta alba instabilis Dall
Ramp, Hangar I
Goddard, Warm Springs Bay

Haliotidae
Haliotis kamtschatkana Jonas
John Brown's Point
Fruit Island
Moore's Beach
Goddard, Warm Springs Bay
Biorka Island
Mahknuti Island
Gold Island
Apple Island
Long Island
St. Lazaria Island

Fissurellidae
Diadora aspera Eschscholtz
Fruit Island
John Brown's Point
Moore's Beach
Biorka Island -and-
Krushkin Island Mahknuti Isl.
Mogillnoi Island St. Lazaria Isl.

Trochidae
Tegula pulligo Martyn
Moore's Beach
John Brown's Point
Fruit Island
Biorka Island
Virublenoi Isl.
Krushkin Isl.
Mogillnoi "
Apple Isl.

Calliostoma costatum Martyn
Fruit Island
Moore's Island
Mahknuti Island
Mogillnoi Island
Biorka Island
St. Lazaria Island

Calliostoma costatum pictum Dall
Mahknuti Island Moore's Beach
Biorka Island

Calliostoma annulatum Martyn
Biorka Island

Calliostoma canaliculatum Martyn
Mahknuti Island Moore's Beach
Fruit Island

Margarites Pupilla Gould
Moore's Beach Ramp, Hangar I
Virublenoi Island

Margarites helicina Phipps
Moore's Beach

Margarites helicina elevata Dall
Ramp, Hangar I
Virublenoi Island

Margarites marginatus Dall
Moore's Beach

Margarites vorticifera sharpii Pilsbry
Biorka Island St. Lazaris Island

Turbinidae
Astraea undosa Wood
Biorka Island
Leptothyra carpenteri Pilsbry
Apple Island BOQ Beach
Virublenoi Island

Epitoniidae
Epitonium wroblewski Morch
Moore's Beach Biorka Island
Verublenoi Island Krushkin "

Pyramidellidae
Odostomia angularis Dall and Bartsch
Sam Sing, Baranof Moore's Beach
Verublenoi Island Ramp, Hangar I

Odostomia baranoffensis Dall &Bartsch
Ramp, Hangar I Virublenoi Island
Moore's Beach Biorka Island
Bay between Japonski and
Charcoal Islands

Turbonilla taylori Dall and Bartsch
Moore's Beach

Naticidae
Natica aleutica Dall
Moore's Beach Sesedni Island
Beach Hangar III Krushkin Island
Long Island Biorka Island
Apple Island

Polinices draconis Dall
Biorka Island

Lamellariidae
Lamellaris stearnsii orbiculata Dall
Moore's Beach

Velutinidae
Velutina laevigata Linnaeus
Moore's Beach Virublenoi Island
Krushkin Island

Velutina sitkensis A. Adams
St. Lazaria Island
Velutina prolongata Carpenter
St. Lazaria Island

Crepidulidae
Crepidula lingulata Gould
MooreIs Beach Long Island
Biorka Island St. Lazaria Isl.
Bay between Japonski and Charcoal Island
Crepidula nummaria Gould
Moore's Beach Biorka Island
Virublenoi Island
Bay betw. Japonski & Charcoal Island

Littorinidae
Littorina sitchana Philippi
All rocky beaches
Littorina scutulata Gould
All rocky beaches

Lacunidae
Lacuna divarcata Fabricius
All beaches
Lacuna marmorata Dall
All beaches

Trichotropidae
Trichotropis cancellata Hinds
Moore's Beach Mahknuti Island
Verublenoi Island

Cerithiopsidae
Cerithiopsis stejnegeri dina Bartsch
Ramp, Hangar I Verublenoi Island
Biorka Island Camp Coogan Bay
Moore's Beach

Cerithiidae
Bittium eschrichtii Middendorff
All beaches listed

Cymatiidae
Argobuccinum oregonensis Redfield
Apple Island **Sam Sing, Baranof**
Mahknuti Island Biorka Island
Bay betw. Japonski Island and
Charcoal Island
St. Lazaria Island

Muricidae
Purpura foliata Martyn
Mahknuti Island Virublenoi Island
Moore's Beach Long Island
Apple Island St. Lazaria Island
Biorka Island, below Loran Station
Causeway Reef between Mahknuti and
Mogillnoi Islands
Tritonalia lurida Middendorff
Moore's Beach
Tritonalia lurida aspera Baird
Moore's Beach Ramp, Hangar I
Tritonalia lurida munda Dall
Moore's Beach
Tritonalia tracheia Dall
Moore's Beach
Trophon multicostatus Eschscholtz
Moore's Beach Virublenoi Island
Mahknuti Island St. Lazaria "
Goddard, Warm Springs Bay

Thaisidae
Thais lamellosa hormica Dall
Camp Coogan Bay Biorka Island
Goddard, Warm Springs Bay
Thais lamellosa Gmelin
Moore's Beach
Thais lamellosa sitkana Dall
Harbor Island Ramp, Hangar I
Moore's Beach Beach, Hangar III

Thais lamellosa Sitkana Dall (cont.)
Biorka Island Mahknuti Island
St. Lazaria Island -Goddard, Warm Springs Bay
Thais Lima Martyn
Mahknuti Island
St. Lazaria Island
Biorka Island (below Loran Station)
Thais emarginata Deshayes
Mahknuti Island
St. Lazaria Island - Biorka Island, below Loran Station
Thais canneliculata Duclos
Mahknuti Island

Columbellidae
Columbella gausapata Gould
All beaches visited
Columbella carinata californiana Gaskoin
All beaches visited

Alectrionidae
Alectrion mendicus Gould
Moore's Beach Fruit Island
Biorka Island Apple Island
Harbor Island Krushkin Island
Verublenoi " St. Lazaria Island
John Brown's Point

Buccinidae
Buccinum undatum Linnaeus
Moore's Beach Biorka Island
Harbor Island Mahknuti Island
Bay between Japonski & Charcoal Island

Chrysodomidae
Searlesia dira Reeve
Harbor Island Moore's Beach
Beach, Hangar III Verublenoi Island
Krushkin Island Gold Island
Mahknuti Island Apple Island
Charcoal Island Alice Island
Fruit Island Camp Coogan Bay
Biorka Island St. Lazaria Island
Goddard, Warm Springs Bay
John Brown's Point

Marginellidae
Cypraeolina pyroformis Carpenter
Moore's Beach Biorka Island
Virublenoi IslandJohn Brown's Point

Melanellidae
Melanella randolphi Vanatta
Moore's Beach Verublenoi Island

Melanellidae
Melanella randolphi Vanatta
Moore's Beach Verublenoi Island

Olividae
Olivella boetica Carpenter
Beach, Hangar III Verublenoi Isl.
Krushkin Island Apple Island

Turridae
Mangilia aleutica Dall
Moore's Beach
Mangilia crebricostata Carpenter
Moore's Beach

Siphonariidae
Siphonaria thersites Carpenter
Goddard, Warm Springs Bay
Biorka Island

Onchidiidae
Arctonchis borealis Dall
Goddard, Warm Springs Bay
Biorka Island Moore's Beach
John Brown's Point

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Suborder Nudibranchiata
Dorididae cryptobranchiatae
Diaulula sandiegensis
Moore's Beach Apple Island
Virublenoi Isl. Finger Float, Japonski Island
Anisodoris noblis
Biorka Island - -Bay betw. Japonski and Charcoal Islands
Tethymelibidae
Chiorera lionina (Melibe lionina)
Moore's Beach Camp Coogan Bay
Long Island Apple Island

Aeolidiadae
Hermissenda crassicornis
Mahknuti Island Moore's Beach
Verublemoi Island St. Lazaria Isl.

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Brachiopoda
Terebratellidae
Terebratalia transversa Sowerby
Moore's Beach
St. Lazaria Island

George E. Lemke
Mt. Edgecumbe
Alaska

Extract of letter from the Rev. Edlwood B. Hunter to Miss Ruth Coats, dated June 18, 1952

"

"George Lemke should be listed as a Malacologist. He has spent almost full time for one year on the subject only working a few days at other occupations and he is doing an exceedingly thorough job. We, of course, do not have the means of making careful comparisons between the specimens which we take and those from other places. We hope that next year we may be able to send the specimens for those listed."

PELECYPODA of SITKA, ALASKA

by Rev. Elwood B. Hunter

Yoldia thraciaeformis Storer, 1838
This was a dredged specimen given to me by a boat owner who had taken it in a drag. He was prospectin for bottom life of commercial value. Taken from Sitka Sound

Pecten hindsii navarchus Dall, 1898
No thorofare Bay (Inner Bay) Sitka

Hinnites giganteus Gray, 1825
No thorofare Bay, Sitka

Pododesmus macroschisma, Deshays, 1839
No Thorofare Bay, Sitka

Mytilus californianus Conrad, 1837
St. Lazaria Isl. off Cape Edgecumbe Especially in seacave. Abundant in many places

Mytilus edulis Linnaeus, 1758
On logs of raft supporting a piledriver stationed at Sitka

Modiolus modiolus Linnaeus, 1758
No Thorofare Bay, Sitka

Lyonsia pugetensis Dall, 1913
No Thorofare Bay, Sitka

Lyonsia saxicola Baird, 1863
or Entodesma saxicola Baird
No Thorofare Bay, Sitka
Sitka across from blockhouse

Cardium corbis Martyn, 1784
Kutkan Island, SitkaSound, Sitka

Saxidomus giganteus Deshays, 1839
Common on all Beaches, Sitka, Alaska

Marcia kennerley (Carpenter) Reeve 1863
No Thorofare Bay, Sitka

Paphia staminea Conrad, 1837
No Thorofare Bay, Sitka

Macoma nasuta Conrad, 1837
Sitka, across from blockhouse

Psammobia californica Conrad, 1848
Sitka, Beach across from blockhouse

Siliqua patula Dixon, 1788
Kruzof Island between Kamenoi & Mountain Point

LEPTOCHITON Gray, 1847

Leptochiton cancellatus (Sowerby) 1839

No Thorofare Bay	Cannon Island
Halibut Point	Kutkan Island

This is the only LEPTOCHITON present in this area. I have not found any that are similar to L. Rugatus (Pilsbry)

TONICELLA Carpenter, 1873

Tonicella lineata (Wood)
Everywhere very abundant. Variouscolor forms; took 256 specimens in one mornings collecting for study of color var. 65 of these were of a distinctly greenish color while 37 were of a red variation. Many of the others had dark plates of varying number. 5mm-46mm in length.

Tonicella ruber (Linnaeus)
This is very clearly species differnnt from lineata. It is found only very low tide line. Lineata is abundant. It is narrower in proportion to its length and color var. are quite different. In alcohol specimens rapidly loose blue lines which make prepared specimens much less distint.

Tonicella submarmorea (Middendorff) or Tonicella insignis (Reeve) as of S. Stillman Berry, June 1951. This is one of the most beautiful of all chitons. It is not scarce-varies considerably in size and beauty. Central area has white lines running perpendicular to axis of the animal. Illustrations in Tryon and Pilsbry "Manual of Conchology" are either of some other chiton or very poorly drawn A large specimen is 41 mm in length. The beautiful green of the girdle in some spec. disappear over night in alcohol.

Cyanoplax dentiens (Gould) or C. Raymondi Pilsbry. See S. Stillman Berry 1948; very common high in the tidal zone under rocks on sandy shores.

Schizoplax brandtii (von Middendorff) 1849. Common across from Blockhouse, Sitka. Large specimens taken at No Thorofare Bay. Largest taken 19 mm long.

Ischnochiton (Ischnochiton) interstinctus Gould Dredged off Bandoroshni Island, Whale Island; Galankin Island. Taken on shore low in intertidal on Cannon Island. This chiton is found abuddantly in dredged material.

Ischnochiton (Ischnochiton) radians Carpenter - Bardoroshni Island; No Thorofare Bay - -Very few taken on shore but the ones taken are large and beautiful. Dredged specimens are very small.

Ischnochiton (Lepidozona) mertensii (von Middendorff) Abundant everywhere. Next to L. lineata in numbers.

Ischnochiton (Lepidozona) willetti (Berry) Not too sure of my identification of this and the following form.

Ischnochiton (Ischnoradsia) trifidus (Carpenter) Bandoroshni Island Scarce-

MOPALIA Gray, 1847

Basiliochiton flectens (Carpenter)
Off shore of Bamderoshni Island, Sitka in about f fathoms of water; found on a small rock which was held by the tube-feet of a large starfish which was caught on the hook of a halibut skate and brot to the surface.

Basiliochiton heathii (Pilsbry)
Cannon Island; No Thorofare Bay; Bandoroshni Island; scarce, but found at low tide.

Mopalia ciliata (Sowerby)
Cannon Island; Halibut Point; No Thorofare Bay; Bamdoroshni Island; St. Lazarii Island; especially in sea-cave-many beautiful specimens.

Mopalia hindsii Reeve
Cannon Island; No Thorfare Bay; Halibut Point; Large specimens. Some streaked with green. Found especially attached to the bottom of large boulders that are resting on rocks so that there is room underneath for the water to surge back and forth.

See below for Mopalia ciliata wosnessenskii (Middendorff)

Mopalia swanii Carpenter
No Thorofare Bay; Cannon Island; St. Lazaria Island. This is easily distinguished as the same chiton figured by S. Stillman Berry in "Notes on Some British Columbian Chitons" II, June 1951.

Mopalia lignosa (Gould)
Cannon Island; Beach across from blockhouse. Especially abundant here.

KATHERINA Gray, 1847

Katherina tunicata Wood, 1815
The Eckholms (Islands); Kayak Island; Makhnati Island; Abundant on rocks fronting the ocean. I stood in one place & counted over 300 in view. This species is one of the favorite foods of the Thlinget Indians of the Southeastern Alaska, especially the old people that still like native food.

CRYPTOCHITON Middendorff and Gray, 1847

Cryptochiton Stelleri (Middendorff)
Cape Burnoff
Cannon Island
No Thorofare Bay
Halibut Point
This specis is also eaten by the Indians. They grow to a large size. 11 to 12 inches is not uncommon.

(Out of place. See above)

Mopalia ciliata wosnessenskii (Middendorff)

Cannon Island
Halibut Point
No Thorofare Bay
Bamderoshni Island
St. Lazaria Island Especially in the sea-care

Elwood S. Hunter
Sitka, Alaska

Letter from Walter J. Eyerdam, Seattle 5, Washington (October 2, 1952)

"Dear John:

Here is an article about Alaska snails infected with Schistosomids which appeared in today's Port Intelligencer paper. We have had this same situation at times in Green Lake, at Seattle, when there is a large increase of Lymnaea palustris and perhaps other snails. The snail mentioned in the news item which carries the "slough itch" is very likely Galba Randolphii Baker which is found in ponds and lakes thruout the Yukon river system and northward to the Arctic ocean.

When I get around to it I will describe a bit of this summer's activities in Alaska, as well as a more recent excursion of 1400 miles to Southeastern Oregon and Idaho.

From Post Intelligencer, Seattle, Wash. October 2, 1952, Article by Fergus Hoffman, Staff Writer:

"McKinley Park, Alaska, Oct. 1---Swimming in the Artic has become a spoiled pleasure for the residents of Beaver because an irritating skin parasite has been discovered in freshwater ponds near the little Alaska village.

Six miles north of the Artic Circle, the Alaska Science Conference was told today, the afflication called "schistosome dermatitis" has made its first appearance in the northland.

Elaborate laboratory tests by the United States Health Service show it is the same parasite irritation which not infrequently has afflicted bathers in Seattle's Green Lake. In many other parts of the nation, the parasite has ruined many popular bathing reports.

Discovery of the parasite was almost accidental at Beaver. Dr. Wm. L. Jellison of the Rocky Mountain Laboratory at Hamilton, Mont., was told by villagers at Beaver of the "slough itch" which had forced them to forego their summer swimming. To the parasitologist, the description of the villages matched up. All of the villagers who had been swimming developed a sudden and severe attach of itch before they got home. Those who had not been in the water weren't scratching.

Down to the little pond among the horsetails on the northbank of the Yukon River went Dr. Jellison. He found hundreds of snails, regular host to the little, almost invisible fork-tailed flukes which cause the itch. Back at the village, Dr. Jellison explained how the flukes leave the snails in the summer and attach themselves to the first thing that comes along. When a human is the target, the tiny parasites are complacent as long as their new friend remains in the water, but when he begins to dry off, they hastily burrow into his skin. That's when the fun begins."

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If you should happen to have any of the following genera I will make an excellent exchange for 2 specimens of any species of the following:

Hyala - a section of Cingula
Isanda - Trochidae - I.cornuta,etc.
Heldia - Helicellidae -sp.cremei..
Hirasea - Land shell from Japan
Horea
Hemistomia - genus of Rissoidae

Hyalimax
Thalamus -fossil cephalopod
Trigonesemus - fossil brachiopod
Helicodonta
Hindsiella - genus of Leptonacea
Homalogyra - Homalogyridae -land shell

Humphreya - a section of Genus Brechites - Family Clavagellidae -

John Q. Burch-
1584 West Vernon Avenue -Los Angeles 62, Calif.

MINUTES OF THE CONCHOLOGICAL CLUB OF SOUTHERN CALIFORNIA, HELD LOS ANGELES MUSEUM, EXPOSITION PARK, LOS ANGELES, CALIFORNIA, OCTOBER 7, 1952, 7:30 P.M.

CALLED TO ORDER: The President, Dr. Arthur Howard, called the meeting to order at 7:40 P.M. Fourteen members were present, and two guests were introduced and welcomed.

REPORT OF COMMITTEES: **Field:** There was no report as Mr. L. Bessom was not present

NOMENCLATURE: Mr. John Burch gave a report on new publications he had just recently received:

1. a new Pelecypod of the genus Lima, by Leo George Hertlein
2. new species of Listia, by Allyn G. Smith
3. a rare species of Chiton, by A.G.Smith and G.D.Hanna

MEMBERSHIP: Mr. and Mrs. T. E. Peterson, 3450 Duncan Ave. Salem, Oregon, joined the Club.

EDUCATIONAL: Dr. W. O. Gregg gave the following report. "Our second most common slug in Southern California which which we have been calling "Limax marginatus Muller", has been definitely identified as Limax poirieri Mahille, by Dr. H.E. Quick. It is probably that the true L. marginatus does not occur on the North American Continent, though it is reported from Newfoundland. In L. marginatus the mantle bands tend to be curved while in L. poirieri they are parellel. There are very definite anatomical differences between these two slugs and their habits are quite different."

PROGRAM: Miss Ruth Coats, Chairman of the Program Committee, was unable to be present. The President, Dr. Arthur Howard, introduced the speaker, Mr. E. P. Chace, his subject being, "The West Coast Species of Thais". Mr. Chace gave an interesting talk and then lead out in a round table discussion, showing the different species of Thais.

Mrs. John Burch showed the Club some land snails Iberus gualterianus from Spain.

The meeting adjourned at 9:00 P.M.

Signed: Bessie Falconer
236 1/2 Bailey Street
Los Ageles 33, California

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AMERICAN MALACOLOGICAL UNION PACIFIC DIVISION
PRELIMINARY ANNOUNCEMENT - 1953 MEETING

A poll taken by your officers reveals that Asilomar on the Monterey Coast was the most popular site for our 1953 meeting. The weekend of June 12-14 has been reserved and as an added feature the tides too are cooperating for on Friday, the 12th, a -1.6 tide will offer good collecting.

The meeting will start on Friday morning and will close with the banquet on Saturday evening, so that Sunday will be free to return home, or that those so desiring may attend the AAAS meeting.

Further details will be reported as they develop.

RALPH O. FOX, Secretary-Treas.
AMU-PD

A personal communication from Dr. Paul Bartsch:

Mr. John Q. Burch
1584 W. Vernon Av.
Los Angeles, California

October 15, 1952

Dear Mr. Burch:

Your letter has come to hand, and in response to your inquiry, I may say that I have about two months more of work on FLORIDA PYRAMIDELLIDS. When that is completed, Dr. Rehder and I will pitch in to the West American Turrids and finish that report, which is about I think two-thirds done. I will then be pleased to occasionally send you possibly an abstract or a synopsis that will help your many splendid workers on the coast to arrange their collections, both recent and fossil.

I was very much amused and pleased by your articles on the soft malacologists. Most of the people who have confined their endeavors to discussions think, of course, that since that is a tremendous open field, that that is the only one. However, they forget that the soft anatomy of an individual mollusk represents a certain stage of its development, usually the genetalia are stressed above other things, and they again present enormous differences in the same species, depending upon the particular season in which they were taken. So dissecting a specimen or two gathered aththe same time does not tell the whole story. Nothing of the early life history and the various developmental stages are shown as a rule in the adult stages nor the senescent stages.

The shell retains characters from the early embryological phases up to the senescent stages, so that if a person takes time to read it and contemplate it, he gets an enormous amount of information on the history of the particular species through which it has passed.

Also, as you pointed out, if we were to consider a soft anatomy only, our whole paleontological endeavors would have to be shelved.

The thing, as a whole, therefore, is merely the expression of a narrowly informed individual or individuals.

Let me compliment you on the stand you have taken.

Truly yours,
Signed - Paul Bartsch
Associate, Division of Mollusks
(Smithsonian Institution)

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DISCUSSION OF THE SHELLS OF THE GENUS POLYTROPA SWAINSON 1840

by E. P. CHACE

In Johnsonia, Vol. 2 #23 (1947) W. J. Clench has shown the type of Nucella Roding (Museum Boltenianum) 1798 is Buccinum lapillus Roding. This was not the same as Buccinum lapillus Linne 1758 but is a true Buccinoid so Nucella cannot be used as a subgenus of Thais as now understood. The next available for the group of species that Dr. Dall placed in Nucella is, according to W. J. Clench, Polytropa Swainson 1840, which was published in "A Treatise on Malacology" London 1840.

Polytropa lamellosa, Gmel, a very variable species and Grant & Gale (Pliocene & Pleistocene Mollusca of California) say that the 5 subspecies listed by Dr. Dall

in 1915, "Have no systemitic value" - a statement that I fully agree with.

Polytropa emarginata, Desh: Also a very variable species. Variety projecta, Dall may be a good geographic race variety ostrina Gould. The short globose form described by Gould is found in many localities. The shell figured by Dall in 1915 does not fit the description given by Gould.

Polytropa lima Martyn (1789) In the 1893 edition of West Coast Shells, J. Keep, P. canaliculata Duclos is given as a synonym. In the 1911 edition of the West Coast Shells, P canaliculata Ducloscis not mentioned.

In 1910 E. G. Vanatta (Nautilus Vol. 24 Page 37) Thais lima Martyn 1789 Univ. Conch., Plate 46, and lists the following synonyms: Purpura canaliculata Desh, 1839 Purpura attenuata Rve 1840, Purpura decemcostata Midd. 1849 Purpura analoga Fbs. 1850 Purpura beringiana Midd 1851 The latter name is for specimens with the costae more spaced. (I have not been able to check P. canaliculata Desh 1839 but presume that it is the same as P. canaliculata Duclos 1832, or that Mr. Vanatta made a mistake in putting down the authority and date.)

If we accept wide variation in P. lamellosa and P emarginata it is only logical to accept a fairly wide variation in P. lima and when we do there is nothing left to be called P. canaliculata.

E. P. CHACE

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Here's the latest on the NORTHERN CALIFORNIA MALACOZOOLOGICAL CLUB", membership now up to 44 - they continue to come - and we have held up to 29 to 32 over the Summer months, the meetings being informal discussion groups only, due to the vacation period. The September meeting "featured" an offer by the Museum Curator for us to take over the Marine Room (14x16 feet) and there install our study collection in a 4x8 foot flat top case with other material to be installed in cases about the room. We are to be considered a part of the official Museum family and curatorial supplies to be furnished, etc. The room to be redecorated.

The October meeting brought three new members (to make the above total) and Bill Emerson gave a talk on books dealing with our West Coast shells and considerable interest was shown. Many havingnever seen some of the better reference books.

The November meeting is to be held on the 11th (we usually meet on the first Tuesday, but with the election on the 4th, many wanted to listen to the returns) We will have Merton Hinshaw, of Pacific Grove Museum, talk on curatorial methods and demonstrate the latex methods he has been so successful with. Complete details yet to be arranged. So much done - much yet to do.

Ralph Fox, Secretary -

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NEW PUBLICATIONS RECEIVED

Field Guide to Shells of the Pacific Coast and Hawaii By Percy A. Morris. This is the latest of the well known Peterson Field Guide series, same format. The plates are good and a number of them in color. This new book is now ready and may be had from John Q. Burch. Price $3.75

World Wide Sea Shells and The Rock Shell Catalog By Maxwell Smith both bound in one volume. $5.00. The two books formerly sold for about that each, and the Rock Shell Catalog has long been out of print. This may also be had from John Q. Burch $5.00

The Pismo Clam in 1951 by John E. Fitch- California Fish and Game Oct.,1952.

Johnsonia Vol.2,No.31 The Genera Epitonium (Part II), Depressiscala,Cylindriscala,Nystiella and Solutiscala in the Western Atlantic By William J. Clench and Ruth D. Turner.

The work is done with the usual excellence of Johnsonia. The plates are good and the data very complete. One practice will interest students of this family and that is the splitting of the genus Epitonium into the several genera.

Gastropodia Vol. 1, No.1, Oct.15,1952. Papers are-
Pulmonata,Xanthonycidae: Comparative Sexological Studies of the North American Land-snail,Monadenia fidelis (Gray)- A Seeming Ally of Mexican Helicoids By Glenn R. Webb.
Pulmonata,Helminthoglyptidae: Sexological Data on the Land-snails Cepolis maynardi & Helminthoglypta traski fieldi and their Evolutionary Significance By Glenn R. Webb
Pulmonata,Philomycidae: Anatomical Data on the Slugs Pallifera dorsalis,P.fosteri and a New Subspecies By Glenn R. Webb
Pulmonata,Polygyridae: A Sexological Revision of some Triodopsin Land-snails, Xolotrema,Neohelix, & Wilcoxorbis By Glenn R. Webb
Pulmonata,Xanthonycidae: Comparative Sexological Studies of the North American Land-snail,Monadenia fidelis (Gray)-

Subscriptions to Gastropodia should be sent to Glenn R. Webb, Ohio, Illinois.

Die Muscheln Und Schnecken Der Deutschen Meereskusten By Dr. Siegfried H. Jaeckel. This is a sizable work of 67 pages and 7 plates as well as 47 text figures. Leipzig,1952. The work should be of great value to all interested in the European fauna.

The following papers By Alex Luther,Djurgardsvillan 8,Helsingfors, Finland-
Eine polypharyngeale Planarie aus New Foundland- 1952
Ein polypharyngeale Planarie

The following papers from H.C. Ray- India
Cowries. Reprinted from the Bombay Natural Histpry Society- April,1951. Some of the conclusions in this paper are of such interest that they will be more thoroughly reviewed in a future issue of the Minutes.

Revision of the Cypraeceacea in the Collection of the Zoological Survey of India. Part I. The Families Triviidae,Eratoidae and Pediculariidae. Records Indian Museum April,1949

On a Collection of Mollusca from the Coromandel Coast of India

On a Collection of Melaniids and Neritids (Mollusca,Gastropoda) from the Andaman Islands. Records Indian Museum

Circulares Del Museo y Bibliotheca De Malacologia De La Habana June,1952-pp 564 to 601.

Notas Sobre La Recoleccion,Preparacion y Coleccion De Moluscos By M.L. Jaume. This is a very thorough and excellent discussion of the collection and preparation- about 15 pages.

Valor De Las Conchas En Las Primeras Civilizaciones por Dr. P.H. Fischer- (continuing translation from the French to the Spanish by Dr. J.R. Castellanos)

El Genero Pleurotomaria En Cuba por Miguel L. Jaume. An interesting -ing discussion of the extremely rare Pleurotomaria quoyana Fischer et Bernardi and P. quoyana.

These very interesting Circularies may be had from Dr. M.L. Jaume,13 No.351,Habana,Cuba $1.50 for 100 pages.

MINUTES 125
DECEMBER 1952

CONCHOLOGICAL CLUB OF SOUTHERN CALIFORNIA

Subscription $2.50 per year

We are now meeting the first Tuesday of each month at 7:30 P.M. at the Los Angeles Museum, Exposition Park, Los Angeles, Calif. All interested persons are cordially invited.

Please mail all news to your editor: John Q. Burch,
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Los Angeles 62, California
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Home- Ax 2-7965

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An item of interest to conchologists of the West Coast is the recent paper published in Revista De La Sociedad Malacologica by Dr. T. Soot-Ryen " Choromytilus, A New Genus in the Mytilidae" Genotype: Mytilus chorus Molina 1782 . In the new genus the author places the African M. meridionalis Krauss and the West American M. palliopunctatus Dunker. The key to the family is of interest being based upon resilium and in the key he shows the differences between Mytilus s.s., Chloromya, Aulacomya, and Choromytilus.

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The newly elected officers of the Conchological Club of Southern California for the coming year, 1953 are:
President: Mrs. Harry Turver
Vice-President: Miss Ruth Coats
Secretary: Mrs. John Q. Burch

MINUTES OF THE CONCHOLOGICAL CLUB
OF SOUTHERN CALIFORNIA, held LOS ANGELES
MUSEUM, EXPOSITION PARK, LOS ANGELES,
CALIFORNIA, NOV. 4, 1952, 7:30 P.M.

CALLED TO ORDER: The President, Dr. Arthur Howard, called the meeting to order at 7:40 p.m. There were eighteen members present, and five guests were introduced and welcomed.

The secretary's report was approved as printed in the minutes.

REPORT OF COMMITTEES:

FIELD: Dr. W. O. Gregg gave a very short report of his collecting trip in Texas. Not only was the trip interesting but very productive. We are looking forward to the time Dr. Gregg will give us a more detailed report.

NOMENCLATURE: Dr. W. O. Gregg discussed the importance of the anatomy of the mollusks in making the classifications. There are some that feel the classification should be made by shell structure only. Dr. Gregg feels it would be just as reasonable to classify a tree by the appearance of the bark, as to classify mollusks by shell structure only.

NEW PUBLICATIONS: Dr. H. Hill reported on the new book "A Field Guide to Shells of the Pacific Coast and Hawaii" by Percy A. Morris.

MEMBERSHIP: Mr. John Burch brought to our attention the regrettable fact that we don't have even one member from U.C.L.A., where there are at least 20 graduate students who are interested in conchology. Mr. Burch feels that if we could have our programs made out for the year, this would give the speakers time to prepare their papers, and the Club would receive good scientific material.

It was also suggested that this program be posted on the Bulletin Board at U.C.L.A. and at the Hancock Foundation. In this way those interested would be informed of our meetings.

It was voted that the new officers and chairmen meet and work out plans for the year 1953, thereby eliminating unnecessary discussion on such matters at the regular meetings.

SPECIAL COMMITTEE: Mr. John Burch received a letter from Dr. Leonard stating that the next A.M.U. meeting was to be held at the University of Kansas, and hoped that a few from the Pacific Coast would be able to attend the meeting.

Mrs. John Burch read the preliminary announcement for the 1953 meeting of the American Malacological Union, Pacific Division, to be held at Asilomar on the Monterey Coast, June 12-14.

Mrs. John Burch is the first to bring shells for our Los Angeles County Shell Collection. She brought specimens of three families: Cypraea, Conus and Oliva. There are others who working on different families, and we hope to soon have a good representative collection of Los Angeles County shells. Thank you, Mrs. Burch, for giving us this good start.

NOMINATING COMMITTEE: The President, Dr. Howard, appointed a nominating committee of three to report at the December meeting. They are Mr. John Burch, chairman; Dr. H. Hill, Dr. W. O. Gregg.

MINUTES OF THE CONCHOLOGICAL CLUB OF SOUTHERN CALIFORNIA

Dec. 2, 1952

For our last meeting of the year, 25 members and guests gathered at the home of Mr. and Mrs. John Burch, 4206 Halldale Avenue, Los Angeles 62, at 6:30 p.m. for a pot-luck dinner. Everyone enjoyed the delicious food and had a pleasant time visiting together.

CALLED TO ORDER: At 7:45 the President, Dr. A. Howard, called the meeting to order. The minutes of the November meeting were approved as printed.

Mrs. John Burch introduced the guests, also brought greetings from Mr. and Mrs. H. A. Edwards, who were unable to attend the meeting because of illness. Mr. and Mrs. Edwards are moving to the desert, and hope that the Club members will visit them there.

REPORT OF COMMITTEES:

FIELD: Mr. L. C. Bessom, chairman, apologized for not being more active during the last year, but it was because of his heavy work program.

NOMENCLATURE: Dr. W. O. Gregg reported on the Rofinesque's Slugs, by Leslie Hubricht, from the Nautilus of October 1952. A general discussion followed.

Mrs. John Burch read from a newspaper clipping of a shell taken by biologists of the Marine Laboratory, and identified by W. J. Clench of Harvard University as Scaphella Kieneri, a very rare shell.

NOMINATING COMMITTEE: Mr. John Burch, chairman of the committee, presented the following report for consideration: For President, Mrs. Harry Turver; Vice-President, Miss Ruth Coats; Secretary & Treasurer, Mrs. John Burch.

The report was accepted and the secretary instructed to cast the ballot, and the new officers were announced elected.

A bill of $9.45 from Mrs. John Burch for getting out the notices of the meetings was presented by the secretary. It was voted that the bill be paid.

As there were no other reports or business, the President turned the meeting over to Miss Ruth Coats. Miss Coats brought in a box of nicely wrapped packages, and again the yearly exchange of shells was enjoyed by everyone.

A beautiful box of delicious mixed chocolates, given by Mrs. Emma Coats, was passed around by Mrs. Burch. Everyone enjoyed the pleasant social time visiting and getting better acquainted.

Before adjourning, a vote of thanks was given Mr. and Mrs. Burch for the very delightful time we had in their home.

A unanimous vote of thanks was also extended the officers for the past year for the splendid job they have done.

signed Bessie Falconer, secretary
236 1/2 Bailey St.
Los Angeles 33, Calif.

PROGRAM: Miss Ruth Coats, program chairman, turned the program over to Dr. A. Howard, who presented a motion picture of Expedition of the Valero, IV, from the Hancock Foundation. The Picture was "The New Frontier". We were especially privileged to have Mr. William Fortin, the photographer who took the pictures on the Valero, to show the picture and tell us about it. A vote of thanks and appreciation for the beautiful and interesting picture was given Mr. Fortin.

Dr. Howard announced that at the December meeting there will be the Christmas exchange of shells. So everyone come, bring your gift packages, and have a Merry time.

Mr. Arnold G. Johnson, newly elected president of the Pacific Shell Club, was introduced. The meeting adjourned at 9:15 p.m.

Signed: Bessie Falconer, Secy.
236 1/2 Bailey St.
Los Angeles 33, Calif.

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WORLD'S RAREST SNAIL SHELL FOUND NEAR PORT ARANSAS

Caller-Times News Service

Rockport- The known collection of the world's rarest sea snail was doubled this week when Dr. W. J. Clench of Harvard University identified a shell taken by biologists of the Marine Laboratory as a Scaphella Kieneri.

The only other shell of this species known to exist is in a museum at Geneva, Switzerland. The museum shell was collected by French fishermen in the Lesser Antilles in 1829.

The Kieneri was collected by E. D. McRae while making exploratory shrimp trawls in 150-fathom water off Port Aransas. It was submitted to Clench, the world's leading conchologist, for identification.

The shell is cone-shaped, approximately three inches in length. It is of deep cream color with bronze, lozenge-shaped spots arranged spirally around its length.

Jack Baughman, chief marine biologist for the Texas Game and Fish Commission, said Clench is returning the shell to the laboratory here, where it will be placed on display.

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Letter from Walter J. Eyerdam- Washington Bay, Kuiu Island, S.E. Alaska- Report for 1952

The year of 1952 marked the 20th summer that I have worked in Alaska since 1917 and the fifth season in the herring fishery at Washington Bay, Kuiu Island since 1947.

Herring fishing in Alaska is getting poorer every year due to overfishing and shifts of currents carrying the microscopic food supply for the herring. S.E. Alaska which is normally the poorest of the three areas where herring are taken was the best this year with around 42,000 barrels for each of the three operating plants. This amount of catch hardly pays the operating costs. However, the usually rich Kodiak area where the usual catch has been around 400,000 barrels of herring for the four plants in the area, yielded practically nothing this year with only one plant in operation.

The herring has so many natural enemies besides man, being the main food supply for the whales, salmon,halibut,cod and a host of other fishes besides gulls,cormorants,divers and other birds that when a local shoal of herring is overfished the breeding stock that is left becomes so depleted that sometimes the whole colony of herring is destroyed. Overfishing is a constant war against nature and like wars between nations the greed for gain and the ignorance of resulting consequences are so great that the fisherman never learns, even the hard way.

Last year I reported a list of 163 species and varieties of mollusks that I had collected at Washington Bay, which is less than one square mile in area. Although most of the shores of the bay were gone over during minus tides no other species of shells w were found new to the list except one. This was _Solen sicarius_ Gould Two specimens of this species were taken on the beach of Sorefinger Bay which is a small bay of a few acres about one mile beyond Washington Bay. Although I had often collected on this beach, it was the first time to find this species north of Puget Sound. This is an important locality record as this makes it the first time it has been found in Alaska and extends the known range from Vancouver Island to Kuiu Island in the Alexander archipeligo of S.E. Alaska.

With five seasons of intensive botanizing in this area surrounding Washington Bay, I am still finding plants that had been overlooked, especially among the lichens and mosses which grow in profusion in this dostrict.

Our herring season came to an abrupt close on Sept. 10th on account of the fatal poisoning of our superintendent and owner, Jack Storfold, from inhaling the fumes of mustard gas from carbon tetracloride while cleaning the engine of one of the fishing boats that had been sunk and subsequently raised by a salvage crew.

Shortly after returning from Alaska I made an excursion with my wife and Mr. and Mrs. Phil Spicer of Centralia into S.E. Oregon and Idaho after river shells. A report of the results of this trip will be made for another installment in the Minutes.

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Oyster Shell Contains Fish- is the title of a small article in Los Angeles Examiner of Dec.2,1952- Lanacaster,Pa.- An oyster opener in a local seafood market puzzled some experts today with a fish s story which he backed up with evidence.

C. Alfred Winchester said he cracked open a large oyster shell and found a live fish inside, but there was no oyster.

The specimen, small of a greenish brown hue, was turned over to Franklin and Marshall College still alive. A biologist there said he could not immediately identify the fish.

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Personal letter from Dr. Horace B. Baker, University of Pennsylvania- " In your " Minutes 123" you have an interesting editorial on " More About Publication". The W well known writer and professor of zoology", who wants all new species of mollusks accompanied by anatomic studies, may be identified by some readers with me; at least the latter part of the description applies. But, outside slugs, some zonitoids etc., which lack any usable shell characters, I think such a requirement would be very foolish.

Your feelings about endowments are understood, because the Nautilus also has none. Recently, our printers notified us of a new increase in costs, which will require, in the near future, another raise in subscription prices".

* Note* Of course, Dr. Baker was not referred to in the note.

Personal letter from Dr. Paul Bartsch-Dec.10,1952- " Looking at another of your contributions on my table this morning, I marvel at the wonderful energy with which you are endowed, and the best thing that I can wish you for the coming year and the years to come is that there may be no let-up in that direction, and that you may not lose your interest in our chosen field. So my best wishes for the future. Then, I have a suggestion. Looking at the difficulty your bulletins present when it comes to filing them, I wonder if it might not be well for you to issue them in royal octavo instead of quarto size. I have a feeling that doing so would be much more conducive to their preservation which they certainly deserve. So look upon this as a suggestion for the New Year, not a criticism."

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Mr. and Mrs. H. Arden Edwards have a new address. They have moved to Wilsona Rt. 167, Lancaster, Calif. X It is the plan for H.A. to restore the Antelope Research Museum- Indian.

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NEW PUBLICATIONS RECEIVED

Australian Seashores By W.J. Dakin. This is a beautiful new book just published in Australia. Neatly bound 372 pages of text and 99 full page plates, a number of them in full color. All plates as well as text figures are very clear. I have no hesitation in recommending this book to my friends.
Now in stock for immediate delivery $7.50

THE NAUTILUS- Oct.,1952- The following papers are in this issue:
New Gastropods from the Blanco formation By A. Byron Leonard
Rafinesque's Slugs. By Leslie Hubricht
A bristled Monadenia from California By Robert R. Talmadge
Littoridina tenuipes (Couper) By H.A. Pilsbry
Checklist of New Jersey Land Snails By Robert C. Alexander
The Publication Dates of Kobelt's " Illustiertes Conchylienbuch" By Harald A. Rehder
A Preliminary list of the Mollusca of Hanover County,Virginia By John Bayard Burch
A study of Lamarck&s types of Unionidae and Mutelidae By Richard I. Johnson
Eighteenth Annual Meeting A.M.U. By Margaret C. Teskey
In the notes a change of name should be noted- Pecten(Plagioctenium) gibbus portusregii- new name for the carolinensis - by Gilbert Grau.
Notes on Fauxulus Agulhasensis- By Dr. H.P. Pilsbry
A Further Note on the Shells of Pyramid Lake By Morris K. Jacobson
Liguus pictus Reeve not extinct-

Generic and subgeneric names in the molluscan class Scaphopoda By William K. Emerson- Journ. Wash. Acad. Sci. Vol.42,No.9,Sept., 1952. This should be a very valuable paper for all persons in anyw way interested in Scaphopoda.

Nomenclatural Notes on the Scaphopod Mollusca: The Type Species of Fustiaria and Pseudantalis By William K. Emerson- Proc. Biol. Soc. of Wash. Nov.5,1952

The Scaphopod Mollusks Collected by the First Johnson-Smithsonian Deep-Sea Expedition. By William K. Emerson Smithsonian Miscellaneous Collections Vol. 117,No.6,Feb.26,1952.

Primitive Fossil Gastropods and Their Bearing on Gastropod Classification By J. Brookes Knight- Smithsonian Misc. Coll. Vol. 117, No. 13 Oct. 29, 1952.

This is an extremely interesting paper 56 pages and 2 plates. A proper review of this paper should be made in a future issue of our paper.

Three papers by David Nicol, U.S. National Museum from the Hournal of the Washington Academy of Sciences, 1952
A new glycymerid from the Western Atlantic
Designation of the type species of Pseudochama (additional note)
Nomenclatural review of genera and subgenera of Chamidae.

* The last paper in particular should be included in all files of literature on the Chamidae. I can recall some time ago when it would have saved me a long and futile search.

Revidion of the Pelecypod Genus Echinochama By David Nicol
From Journal of Paleontology, Sept. 1952

Cowries- Family Cypraeidae- By H.C. Ray from the Bombay Natural History Society, April, 1951. This is a very interesting paper on the habits and habitats of the Cypraeidae.

I will quote a line or two because of the fact that some time ago we had a discussion of this matter and found the general attitude one of incredulity. " It is known that Cypraea possesses, upon emergency, the extraordinary power of dissolving and renewing its shell. ..."

Auckland Museum Conchology Club- Placostylus Snails- New Zealand a and Foreign By N.W. Gardner. This is a very thoroggh check list and discussion of this genus- 4 pages- July, 1952
Collecting at Oruawharo Bay- Great Barrier Island" By Wm. P. Thompson.

Circulares Del Museo y Biblioteca De Malacologia De La Habana- Editot: M.L. Jaume, 13 No. 351, Vedado, Habana, Cuba- Precio $1.50 x 100 paginas.

These are mimeographed papers but contain a great deal of very valuable and interesting material particularly if you read Spanish although there are some parts in English.

Pages 601-646 Julio, 1952- In this issue among others are the following of genuine interest- Valor De Las Conchas En Las Primeras Civilizaciones Por Dr. P.H. Fischer, Traduccion del frances Por Dr. J.R. Castellanos; Las Perlas De Mikimoto por el Conde de Ibiza; Nuevos Records De Gasteropodos De Puerto Rico Por Miguel L. Jaume; (This last is quite an extensive check list); Barro Colorado Por Corinne B. Feeney; La Classification De Las Differentes Ramas Del Reino Animal Por el Prof. Dr. Caesar R. Boettger

Charles Montague Cooke Jr., A Bio-Bibliography By Yoshio Kondo and William J. Clench- Bernice P. Bishop Museum, Special Publication 42, 1952.

A valuable work of 56 pages on the work of Dr. Cooke including a complete list of his many publications and new species and genera described.

Fisheries Newsletter , Australia for Aug. 1952 - In checking through a current file I find one article of interest at least to me. The title " The Shape of the Trawl in Action". This might be of

interest to our growing group of frogmen or skin divers also because the article is about the frogmen working with the trawlers to find the exact shape of the trawl in action.

Of course, these are the very large commercial trawls 53' wide and 90 Ft. in length. However, in my limited experience in both dredging and trawling over a period of about ten years I found that the small trawl resulted in more really fine catched of fine deep water shells than any dredge possible. The dredge is disposed to fill quickly especially in very deep ooze and in spite of raising and dropping again to wash out the mud will result in a comparatively small number of shells, whereas a good trawl with loose enough net, fine netting in the rear may drag for a mile or more and bring up an astonishing lot of really fine things. I sincerely regret that I no longer have the time to try out some of these new ideas in trawling for deep water shells. I might add that I am convinced that some of the more active deep water shells such as some of the Pecten will actually swim or jump out of the way of a slow moving dredge. In any event for example I found such species as Pecten diegensis Dall a very rare thing in a dredge although dead valves would come up in quantity. But a well made trawl would bring up a fair number of them. Of course, the trawl may well fill up with fish, shrimps, echinoderms, etc. but that is always a part of the game.

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If any of my friends have specimens of any of the following genera I will be pleased to make them a very unusual exchange for a pair of any species- of
Kabylia, Kalydon, Kalidos, Kara, Koratia, Koronia, Korovina, Kopionella, Kosicia, Kenia, Kerria, Kylix, Khasiella, Kryptos, Kravesina.

John Q. Burch

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We have a card from Dr. Jeanne Schwengel from Florida where she mentioned seeing the McGintys, the Pilsbry girls, Axel Ollson. We were sorry to hear that Leo Burry has been seriously ill.

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Between Pacific Tides By Ricketts and Calvin- Revised 1952 By Dr. Joel W. Hedgpeth of the Scripps Institution of Oceanography is having a very good sale in our book shop. $6.00

The Ocean River By Henry Chapin and F.G. Walton Smith- The Story of the Gulf Stream- is also having a very large sale with us. An interesting book $3.50

*** A note about American Sea Shells By Tucker Abbott. We are advised by the publishers that the book will not be ready until some time in 1953.

The books enjoying the largest steady sale are:
Field Guide to the Shells of the Pacific Coast and Hawaii By Percy A. Morris. $3.75. Incidentally this is an excellent field guide as it is advertised and purchasers should not expect a coverage of the entire possible fauna. To do this would mean a set of not less than 50 books of the same size. The thousands of rare and deep water species seldom seen by the average collector would be out of place in any field guide.

A Beginners Guide to South African Shells By K.H. Barnard $4.25
Illustrated Handbook of Shells in Natural Colors from Japan $7.00
Australian Shells By Joyce Allan $7.50

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